This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

+ *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.

+ *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.

+ *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.

+ *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at `http://books.google.com/`

To the Bodleian Library
Oxford
from the Author.

New York July 22nd 1856

THE

MEDICAL PROFESSION

IN

ANCIENT TIMES.

AN ANNIVERSARY DISCOURSE

DELIVERED BEFORE THE

NEW YORK ACADEMY OF MEDICINE,

NOVEMBER 7, 1855.

BY

JOHN WATSON, M. D.

SURGEON TO THE NEW YORK HOSPITAL.

[PUBLISHED BY ORDER OF THE ACADEMY.]

NEW YORK:

PRINTED FOR THE ACADEMY BY BAKER & GODWIN,

CORNER NASSAU AND SPRUCE STREETS.

1856.

181. a. 184.

Entered according to Act of Congress, in the year 1856, by

JOHN WATSON, M. D.,

In the Clerk's Office of the District Court for the Southern District of New York.

PREFACE.

In the preparation of the following discourse, I have endeavored to trace the origin and progress of medicine among the ancients in as succinct a manner as possible consistent with perspicuity; and at the same time to omit nothing of importance or interest in relation to the subject.

Though small, the work is the result of no inconsiderable research; much of which might have been spared, had I been disposed to rely simply on the historians. But as my investigations were undertaken for my own gratification, I have, as far as leisure and opportunity would permit, drawn the facts and opinions here embodied, from the earliest authorities.

But while resorting to the ancients, I am not indisposed to acknowledge the assistance I have received from modern and recent writers. Without the learned researches of Le Clerc, Freind, Schulze, and Sprengel, much that has since appeared on the history of medicine might never

have seen the light. The works of these authors, as well as of Barchusen, Gœlicke, Hamilton, and Renouard; the "Bibliotheca Scriptorum Medicorum" of Mangetus, the seven volumes of Biographie Médicale from the "Dictionnaire des Sciences Médicales;" the able articles on medical history by Bostock in the "Cyclopædia of Practical Medicine," and by Rage Delorme in the "Dictionnaire de Médecine," not to speak of the medical articles in the several dictionaries of classical biography,—I have consulted on all occasions.

My researches have been further expedited by Stanley's, Tennemann's, and Ritter's Histories of Philosophy, by Taylor's account of the Ancient Mysteries, by Mosheim's Ecclesiastical History, Therwell's Greece, Gibbon's Decline and Fall of the Roman Empire, Sharpe's History of Egypt, Guizot's Cours d'Histoire, and by the Oxford Tables of Chronology. The recent translations from the Greek classics published by Mr. Bohn and others, I have put under extensive contribution, particularly the works of Herodotus, Thucydides, Xenophon, Plato, Aristotle, Diogenes Laërtius, Plutarch, Athenæus, and the writings of the emperor Julian, as well as the ecclesiastical histories of Eusebius, Socrates, Theodoret, and Evagrius.

The medical writers of antiquity, from Hippocrates to Paulus Ægineta, with one or two insignifi-

cant exceptions, so far as they have yet appeared in print, as well as the other works of reference already mentioned, I have in my own library. From these ancient writers, and their respective commentators, I have drawn without restraint. Among the commentators to whom I am most indebted are, Ackermann, in Kuhn's editions of Hippocrates and Galen; M. Littré, in his recent and elaborate Introduction to his French version of Hippocrates; Mr. Adams, in his English versions of Hippocrates and Paulus Ægineta; Greive, in his introduction to Celsus; Conrad Amman, in his preface to Cælius Aurelianus; the numerous commentators whose names are associated with the "Medicinæ Artis Principes post Hippocratem et Galenum," published under the auspices of Henric. Stephanus; and Coccius, in the "Græcorum Chirurgici Libri e collectione Nicetæ." Much also bearing upon the profession I have drawn from Aristotle's treatise "De Animalibus;" from Vitruvius' "De Architectura;" from the agricultural treatises of Cato, Varro, Columella, and Palladius; from the "Mulo-medicina" of Vegetius; from Apicius, "De Opsoniis;" and from the writings of the elder Pliny.

For all that relates to the laws and usages of the Roman Empire in regard to the profession, I have drawn from the "Corpus Juris Civilis" of Justinian,

excepting one or two enactments from the Theodosian Code which I have taken on other authority.

Led on by the attractive nature of the study, I have extended my researches beyond the period of Greek and Roman antiquity; and have on hand the materials for a somewhat similar account of the profession among the Arabs of the East and West, among the Byzantine and Latin schools, and the monastic medical institutions of the middle ages; which I hope on some favorable occasion also to present to the New York Academy of Medicine, to whom the present work is most respectfully inscribed.

TABLE OF CONTENTS.

PAGE

PREFACE, ... 1
INTRODUCTORY REMARKS, ... 9

CHAPTER I.

THE CONDITION OF MEDICINE IN THE EARLIEST ORGANIZATIONS OF SOCIETY.

Nations in which the art of medicine was unknown as a distinct occupation, ... 12
The first practitioner of Rome, ... 13
The Druids of Europe, ... 13
The Vaidhyas of India, ... 14
The Lamas of Central Asia, ... 14
The Tla-quill-aughs of America, ... 15
The Priests of Egypt, ... 16

CHAPTER II.

THE ORIGIN OF MEDICINE AMONG THE GREEKS.

1. The Gymnasia and their course of Education, . . 18
2. The Schools of Philosophy, ... 20
The School of Pythagoras at Crotona, ... 20
Democedes of Crotona, ... 21
The Academy and Lyceum, ... 22
3. The Temples of Æsculapius, their usages, rules, and symbols, 25
Æsculapius and his descendants, ... 29
Other Medical Divinities, ... 30

PAGE
4. The Periodeutæ or Itinerant Practitioners, . . 30
Progress of the Profession in Greece, before the age of Pericles, 33

CHAPTER III.

THE ASCLEPIADÆ.

Their modes of Initiation similar to those of the other Mysteries or Secret Associations of Greece, . . 34
The Eleusinian, Dionysian, and other Mysteries, . . 35
Their three degrees or stages of Advancement similar to those of the early universities of Europe, . . . 36
Course of Training among the Asclepiadæ, ... 36
The Ceremony of Coronation, ... 39
The Medical Acquirements of the Asclepiadæ, . . . 40
Herodicus of Selymbria, ... 41
The Policy and Ethics of the Asclepiadæ, ... 42
Their Social Rank, ... 44

CHAPTER IV.

HIPPOCRATES AND HIS IMMEDIATE SUCCESSORS.

Personal History of Hippocrates, ... 45
The Hippocratic Writings, ... 48
The Doctrines of Hippocrates and of his followers, . . 52
The Schools of Cos and Cnidos, ... 57
The Plague of Athens, ... 61
The Anatomical and Physiological views of Aristotle, . 66
The Last of the Asclepions of Cos and Cnidos, . . 72

CHAPTER V.

PERGAMUS AND ALEXANDRIA.

The Asclepion and Library of Pergamus, . . 74
The Founding and Institutions of Alexandria, . . 74

PAGE
The Temple of Serapis, its Library, ... 76
The Museum; its organization and courses of Instruction; its Faculties, ... 77
The Use of Papyrus and of Parchment, ... 82
Early Libraries, ... 83

CHAPTER VI.

THE SCHOOL OF MEDICINE AT ALEXANDRIA.

Herophilus, Dissections of the Human Body, ... 84
Erasistratus, ... 85
Writers on Dietetics, Pharmacy, and Surgery, . . . 87
The Business of Teaching not confined to the Museum, . 89
Devices of the Priests of Serapis, ... 89
The Teaching of Medicine at Alexandria, after the period of Herophilus and Erasistratus, ... 91
The Rationalists, the Empirics, and other sects, . . . 91

CHAPTER VII.

THE SCHOOLS OF SMYRNA, PERGAMUS, AND EPIDAURUS. 93

CHAPTER VIII.

THE SCHOOLS OF ROME.

SECTION I.—*From their Origin to the Rise of the Eclectics.*

The Introduction of Grecian Learning among the Romans, . 96
Cato the Censor, ... 96
Caius Marius, ... 97
Asclepiades of Bithynia, ... 99
Antonius Musa, ... 102
Cassius, ... 102
The Early Surgeons and Oculists of Rome, . . . 105
The Doctrines of the Rationalists and Dogmatists, . . 106
The Doctrines of the Empirics, ... 108

PAGE
Themison of Laodicea, and the Doctrines of the Methodic Sect, ... 110
Celsus, and his Writings, ... 112
Apuleius, ... 121
Scribonius Largus, ... 122
Athenæus, and the Pneumatic Sect, ... 124
Agathinus and the Eclectics, ... 125

SECTION II.—*The Later Methodists of the Roman School.*

Roman Authors, writing in Greek, ... 125
Andromachus of Crete, ... 126
Thessalus of Tralles, ... 126
Philomenus, ... 127
Archigenes, ... 127
Heliodorus, ... 128
Antyllus, ... 128
Soranus of Ephesus, ... 129
Cælius Aurelianus, ... 130
The Practice of the Later Methodists, ... 132
The Obstetric Art, ... 134
Aspasia and Moschion, ... 135
The Culinary Art, Apicius Cœlius, ... 136

SECTION III.—*Pliny the Elder.*

Contagion and Infection, ... 140
The Art of Distilling Alcohol from Wine, ... 141
Progress of Medicine at Rome up to the time of Galen, . . 141

CHAPTER IX.

GREEK WRITERS AND TEACHERS, NOT OF THE ROMAN SCHOOL, BUT CONTEMPORARY WITH IT.

Dioscorides of Anazarba, ... 143
Ruffus of Ephesus, ... 144
Aretæus of Cappadocia, ... 145

PAGE
Marcellus of Sida, ... 147
Quintus, Marinus, Satyrius, and others, of the School of Pergamus, ... 147

CHAPTER X.

GALEN.

His Personal History and Character, ... 149
His Writings, ... 153
His Discoveries and Doctrines, ... 162

CHAPTER XI.

LATIN MEDICAL WRITERS SUBSEQUENT TO GALEN.

Reasons for the Decay of the Roman School, . . . 174
Serenus Sammonicus, ... 175
Theodore Priscian, ... 176
Marcellus Empiricus, ... 177
Vegetius Renatus, ... 178

CHAPTER XII.

GREEK MEDICAL WRITERS AND MEDICAL INSTITUTIONS SUBSEQUENT TO GALEN.

Cæsarius, ... 179
Rivalry in the Schools of Athens, ... 181
Oribasius, ... 182
Hospitals and Medical Institutions of Christianity, . 186
The Hospital of Cæsarea, ... 187
Perabolani, ... 188
The Nosocomi, ... 189
Nemesius, Bishop of Emessa, ... 189
Jacob Psychrestus, ... 191
The Last of the Ancient Latins, Macer Floridus, . . 191
Aëtius, ... 193

PAGE
Alexander Trallianus, ... 197
Procopius, his account of the Plague and of the Medical Men during the reign of Justinian, Human Dissections, . 200
Suppression of the Schools of Philosophy and other Institutions of Paganism, ... 202
Theophilus, ... 202
Stephen of Athens, John of Alexandria, and Palladius, . 203
Ahrun, ... 203
Paul of Ægina, ... 204
Summary view of the Progress and Decline of Medical Science among the Ancients, ... 206

CHAPTER XIII.

LAWS AND CUSTOMS OF THE ROMAN EMPIRE IN RELATION TO THE PROFESSION.

The usages of the Profession in Rome, adopted from the Greeks, ... 208
The Term of Study, ... 209
System of Instruction, ... 210
Servile Practitioners, ... 212
The Quacks of Rome, ... 214
Schools of the Provincial Cities, ... 214
Their Professors, salaried by the State, ... 215
The Edict of A. D. 370, in reference to the supervision of Students at Rome, ... 216
Archiatri Populares, or State Physicians, their duties, privileges, and immunities, ... 217
The care of Education entrusted to them; their modes of granting licenses to practice, ... 118
The Archiatri Palatini, or Physicians to the Imperial Household, ... 220
Army Physicians, Private Practitioners, ... 220
Christian Usages and Institutions, ... 221
Laws of the Empire relating to the Profession, never abrogated, ... 222

INTRODUCTORY REMARKS.

To the New York Academy of Medicine.

Gentlemen:—The task which you have imposed upon me, and which I come before you this evening to fulfill, is one for which I am ill prepared. Habits of retirement long indulged, are not easily laid aside. The occupations of the sick-room favor a close, sententious manner, rather than fluency of speech.

It may, indeed, be said, that in this respect I am only on a par with my associates. Few of us, it is true, are known as public speakers. Eloquence gives spirit to the pulpit, gives spirit to the bar; but the Genius of Medicine sits pensive and alone, her finger on her lips, as if admonishing her votaries by the example of her own silence, to bury deep within the recesses of their bosoms the disclosures of the sick. Ours is the quiet profession. The prudent physician is the keeper of his own counsel; thinking much, and speaking little.

But, Gentlemen, though not given to elocution, I have not felt at liberty to refuse this opportunity of addressing you. I cannot plead the diffidence of a stranger. I am not here among you for the first

time. I stand in the midst of friends,—of brethren,—of those who for many years have been my companions in daily toil, moved by the same impulses, agitated by the same fears, excited by the same hopes, elated by the same successes as myself. With the associations of a quarter of a century clustering thick around me, on this our common hearth, I feel that I am at home, and can speak, as well as breathe, without restraint.

To the initiated, Medicine is something more than a profession. It is a world within itself. It has its history, its philosophy, its politics, its literature, of which the world at large knows nothing. It has its subsidiary arts and occupations. It has its organizations and institutions, its ranks and grades of honor. It has its polemics and dissensions, not always amenable to logic or to the learning of the schools. In ethics, traditions, and superstitions, it is older than the church. In use before the civil law, it recognizes no arbitrary enactments. Nature is its only court of equity. And who of us shall forget its ever-living charities; its moving scenes of joy and sadness; its many sunny aspects; its benignant, ennobling, liberalizing influences; which few beyond our own circle can properly appreciate, and none so well understand as ourselves!

No wonder, then, that the members of our profession, drawn together by these hallowed ties, should be disposed to band together as a brotherhood. Such has always been their course. The Druids of early Gaul and Britain, the Asclepiadæ of Greece, the priests of ancient Egypt, the lamas of Central

Asia, the Vaidhyas of India, the fraternities of the middle ages, and up to the present hour the countless societies and colleges of our own and other lands devoted to the healing art, are in proof of this. So that wherever social freedom has existed, or tyranny would permit, internal organization and development has been the rule of our profession.

With these facts before us, our origin and growth as an element of civilization, is a subject worthy of some attention. I propose to occupy the passing hour in contemplating it, so far at least as relates to the condition of medicine in ancient times, and among those people from whom the usages of modern society have been derived.

This subject is one which has often furnished occupation for my leisure hours. It is pleasant as well as profitable to turn, on fit occasions, from the bustle of active life, to the study of the past,—to the origin of our art, to the principles and necessities that called it into being, to the struggles of our ancestry. We are thereby better able to understand our own position, to know how far we have advanced, to whom we owe our progress, the labor still before us, and the places we ourselves are likely to occupy in the estimation of those who are to follow us.

CHAPTER I.

THE CONDITION OF MEDICINE IN THE EARLIEST ORGANIZATIONS OF SOCIETY.

The art of medicine is at the present day so universally exercised, that we can hardly suppose an organized community ever existed in which it was overlooked; and yet such appears to have been the fact.

There is reason to believe that among the Assyrians and other early Asiatics, it was never pursued as a distinct occupation. The eastern Magi must have devoted some attention to it; and the seers of Palestine may have had some pretensions to skill in the cure of diseases as a part of their divine calling. Job speaks of his counselors as "physicians of no value;" and Moses, of the preparation of the sacred oil after "the apothecary's art." King Asa, when his disease was exceeding great "sought not the Lord, but his physicians;" and Jeremiah asks, "Is there no balm in Gilead? is there no physician there?" From these and other allusions in the Old Testament, it is evident that among the Israelites there were, perhaps after the manner of the Egyptians, certain men giving their attention to medicine. But the Babylonians, as we learn from Herodotus,*

* Book I. chap. 197.

were destitute of physicians, and in the custom of exposing their sick in the market-place, in order that those who had been similarly affected might communicate to them the means of cure. The kings of Persia had no physicians of their own nation; but were in the habit of obtaining them from Egypt, or luring them by rich rewards from Greece. The early Romans were in like condition. Their first attempt to secure competent medical attendance, was in the year of the city, 535; when they induced Archagathus of Peloponnesus to settle amongst them, offering him the freedom of the city, furnishing him with a residence, and providing liberally for his support at the public expense. But, as we learn from Pliny,* Archagathus proved to be their "carnifex" rather than their "vulnerarius;" so that their first effort not turning to their advantage, they were not soon again disposed to repeat it; and we find Cato, nearly a century afterwards, relying for medical assistance upon charms and superstitious observances of his own, or upon the untutored skill of his domestics.†

In the earliest stages of civilization, among most primitive people, where medicine is practiced at all, the functions of the physician are usually united with those of the priest and civil ruler.

The oak-groves of ancient Europe were as sacred to medical observances as to the other mysteries of Druidism. The blossoming of the mistletoe and the ripening of its berries, at the summer and the win-

* Nat. Hist., lib. xxix., cap. vi. viii. † Cato de Re Rustica, cap. 160.

ter solstice, marked the seasons of the sacred feasts; and after adorning the ceremony of the sacrifice, the hallowed plant was carefully set aside by the ovate and physician of the tribe, to be used in case of need as a medicine.*

According to Hindoo mythology there are, besides Brahma, the creator, not less than six minor divinities skilled in the healing art. The ancient and still existing caste of Hindoo physicians, the Vaidhyás, trace their family descent from Virabhádra, the fortunate, the son of Brahma. It was to the thirteen sons of this demi-god that were first revealed the sacred sagas, by the study of which they and their descendants to the present day, have been rendered learned pundits and skillful physicians.†

Among the Tartars, the lama is the only physician. One of these people, conversing with a recent traveler‡ on the subject of the war between China and England, says, "The Chinese were everywhere protesting that we were marching to certain death. 'What can you do,' say they, 'against these sea-monsters! They live in the water like fish. When least expected they appear on the surface, and throw combustible balls of iron. When the bow is bent against them they take to the water like frogs.' Thus they tried to frighten us. But we soldiers of the Eight Banners are ignorant of fear. The em-

* Giles, in Richard of Cirencester's Ancient Britain.

† Wise, Hindoo System of Medicine. Calcutta, 8vo., 1845. Chap. ii., p. 11.

‡ M. Huc. "Souvenirs d'un Voyage dans la Tartarie, la Thibet, et la Chine." See Edinburgh Review, April, 1851, p. 207.

peror has supplied each leader with a lama instructed in medicine, and initiated in all sacred auguries, able to protect us from the diseases of the climate, and to save us from the magic of the sea-monsters. What, then, have we to fear? The rebels hearing that the invincible troops of Tchakar were approaching, * * * sued for peace; * * * and then we returned to our pastures, and to the charge of our flocks."

Again, among the aborigines of our own country, the functions of the physician are in the hands of the priest. The Tla-quill-augh, or man of supernatural gifts, is supposed to know all things, and to be capable of throwing his good or bad medicine, without regard to distance, on whom he will; and to kill or cure by magic at his pleasure. These Tla-quill-aughs are generally men beyond the meridian of life; grave, sedate, and shy, with a certain air of cunning; but possessing some skill in the use of herbs and roots, and in the management of injuries and external diseases. The people at large stand in great awe of them, and consult them on every affair of importance. But their personal safety is not in proportion to their influence. Every misfortune, unseen evil, or sudden death among the people, is immediately attributed to them. And, however innocent of the calamity, they are apt to pay for it with their lives.*

These customs of the savage, springing as they do out of the untutored instincts of the human heart,

* Ross. "Adventures on the Oregon and Columbia River."

may be taken as no inapt illustration of what may have been the first estate of medicine among those people from whom it has descended to ourselves. Overlooking the juggleries of the Indian priests, the philosopher will discover that their real force lies precisely in that department of the art which, in ancient times, was cultivated earliest, and with most success; and that the foundation for the future development of medical science among them, is quite as broad as that upon which the enduring, but still unfinished temple of medicine was originally begun, more than thirty centuries ago; the first architects of which, like the Tla-quill-aughs of Oregon, were also of the order of the priesthood.

Among the early Egyptians the priests were a numerous and influential body; receiving for their support about one-third of the whole income of the nation. They were of several orders; most of them skilled in medicine, and practicing, as some suppose, gratuitously among the people.* "Here," says Herodotus†, "each physician applies himself to one disease only, and not more,—all places abound in physicians; some for the eyes, others for the head, others for the teeth, others for the parts about the belly, and others for internal diseases." Of this same class were the embalmers,‡ whose occupation must have rendered them familiar with the internal

* Schulze, p. 24, from Diodorus Siculus. † Book II. c. 84.
‡ Herodotus, Book II. ch. 86, *et seq.*

structure of the body, and furnished them with useful insight into the nature, causes, and results of diseased action. The deference paid to the medical skill of the Egyptian priests, was not confined to their own people. They were sought for by the rulers of the surrounding nations, and sometimes sent abroad against their will. Cambyses, the Persian, demanded the daughter of Amasis, king of Egypt, at the instigation of a physician, who had been forced by Amasis from his native country, and had taken this mode of revenge for having been torn from his wife and children to gratify the request of Cyrus, who had asked for the ablest oculist of Egypt.* The attendants on Cambyses must have known something of the internal structure of the human frame; for, having shot an arrow through the body of a child, the son of Prexaspes, to prove his skill in archery, he ordered them to open him and examine the wound; when the arrow was found to have pierced the heart.† The practice of the Egyptian priests, as we learn from Aristotle,‡ was in conformity with a prescribed law. "Even in Egypt," says he, "the physician was allowed to alter the mode of cure which the law prescribed to him, after the fourth day. But if he did so sooner, he acted at his own peril."

* Herodotus. Book III. c. 1. † Ibid. Book III. c. 35.
‡ Politics. Book III. c. 15.

CHAPTER II.

THE ORIGIN OF MEDICINE AMONG THE GREEKS.

Among the Greeks the art of medicine appears to have been derived from three sources; the Gymnasia, the schools of Philosophy, and the Temples of Æsculapius.*

1. At the Gymnasia the course of education consisted, first, of music, which, according to the ancient use of the term, included every study for developing the intellectual and moral faculties; and secondly, of gymnastics, in which was included every exercise for strengthening and improving the body. It was a rule with these people that what the boy first learns in sport he will afterwards love, and exercise with more ability as the serious occupation of his manhood; and hence, that children should practice as amusements such sports as are best suited to prepare them for their future occupations.† The course of intellectual training at the gymnasia, according to Plato,‡ began with the sixth and ended with the twentieth; or, according to Aristotle,§ began with the seventh and ended with the twenty-

* Littré, Œuvres d'Hippocrate, Introduction, tome i. p. 5.
† Plato, Laws. Bk. i. ch. 12.
‡ Laws. Bk. vii. c. 4.
§ Politics. Bk. vii. c. 17.

first year. For learning to read and write, according to Plato,* three years will suffice for a boy commencing at ten years old; and the three succeeding years will be sufficient for the handling of the lyre. The free-born are also to be educated in computation, in geometry and astronomy; not all, indeed, with equal nicety. But such as may be necessary for the masses, it would be, says he, shameful for the many to neglect. That, however, which tends merely to the acquisition of wealth or bodily strength, or any other cleverness apart from intellect and justice, he excludes from this course of training, as not worthy to be called education at all; applying this term only to that which tends to virtue,—which causes one to feel a desire of, and love for becoming a perfect citizen, and to know how to govern, and be governed.

In connection with this intellectual course, the physical exercises were also systematically pursued at the gymnasia. These latter embraced not merely wrestling, racing, and other athletic sports; but also the general rules of health; attention to the food most proper for invigorating the frame, for increasing the powers of endurance against fasting, fatigue, watching, exposure to the weather or to the vicissitudes of the seasons; and to every circumstance likely to prepare the youth for serving as soldiers in defense of their country, or for acquiring applause in contests with one another at the Olympic, Pythian, or other national festivals. These exer-

* Laws. Bk. vii. c. 14.

cises, however, were not confined to youth. The people of every rank engaged in them. At the Palestræ, in which they were conducted, injuries were of frequent occurrence. The Gymnasiarchs in charge of these institutions, as well as the Iatroleptists, or anointers, who assisted them, had constant opportunity of witnessing and treating accidents; and from the experience thus acquired, these men were in some degree trained to the management of diseases originating from other causes. The Homeric heroes had probably acquired their surgical skill in this manner. But if some of them, as Machaon and Padalirius, possessed extraordinary ability in the treatment of injuries, they were not exclusively devoted to its exercise; for they were quite as ready at inflicting wounds as at curing them.

2. At the schools of philosophy some attention was always devoted to medicine as a department of speculative knowledge. The School of Pythagoras, at Crotona in Magna Græcia, now the south of Italy, preceded that of Plato by more than a century. Before assuming the business of teaching, Pythagoras had spent much time in Egypt; and he probably introduced something of Egyptian science in his course of instruction at Crotona, where medicine was first cultivated as a department of philosophy. Of this school were Empedocles, the author of a medical poem; Alcmæon, who was occupied in the dissection of brute animals; and Democedes, the most skillful physician of his time, who flourished more than a century before Hippocrates. Of

this same school also was Acron, the first of his sect to give attention to practical rather than to speculative inquiries; and who is said to have arrested the progress of an epidemic at Athens, by kindling large fires in different parts of the city. To him the Empirics, a sect of much later date, were ambitious of tracing their opinions. He was the author of a treatise on nutrition, which had perished before the age of Pericles.

Of these philosophers, Democedes is the only one who is known to have devoted himself to medicine as an industrial occupation. Leaving Crotona and his father's house, he first settled at Ægina; where, though poorly provided with the instruments of his art, he soon surpassed the most expert of the physicians. In the second year the Æginetæ engaged him, for a talent out of the public treasury; in the third year, the Athenians, for a hundred minæ; and in the fourth year, Polycrates, for two talents. He subsequently accompanied this prince in a maritime expedition from Samos to Asia Minor; where he fell into the hands of the Persians. He afterwards rose to distinction by curing Darius of an injury of the ankle, which the Egyptian physicians had failed to relieve; and thus he acquired great influence at Susa, sitting at the king's table, overwhelmed with riches, and in the enjoyment of every honor and privilege which Darius could bestow, excepting only the privilege of returning to his native country—a privilege for which he languished; and which, after curing Atossa, the wife of Darius and daughter of Cyrus, of a tumor of the breast, he finally obtained by

stratagem. In the time of Democedes, the physicians of Crotona, according to Herodotus, were esteemed to be the ablest in Greece, and the Cyrenæans the second.*

The writings of Plato and Aristotle are filled with allusions to our art; and from it they are continually drawing their happiest illustrations. Plato had the following inscription over the door of his Academy:

"Let none ignorant of geometry enter here."†

And whether this is to be understood literally, or as referring to previous moral and intellectual training, it is evident he sought to give instruction only to such as had already received elementary education sufficient to enable them to appreciate and profit by his discourses. Nor could his pupils have been more than voluntary listeners. For when reading to them his dialogue "On the Soul," the most of them rose and departed, Aristotle alone remaining to be edified by its reasonings.‡ This school was of small beginning. The little orchard adjoining the Academy, constituted Plato's principal patrimony. Before he began to teach, it yielded him only two aurei nummi annually. But the revenue derived from it in course of time, amounted to more than a thousand; for it was much enlarged by well-wishers and studious persons, who bequeathed something of their wealth to the philosophers. Plato exacted no pecuniary recompense from his pupils. But Aris-

* Herodotus. Bk. iii., ch. 129, *et seq.*

† Stanley. History of Philosophy. Fol. Lond., 1687, p. 262.

‡ Diogenes Laertius, in Life of Plato. Chap. 37.

tippus, who had been his fellow-pupil under Socrates, and was afterwards the founder of the Cyreniac sect, believing that instruction is the more highly valued by the money paid for it, gave the first example among the philosophers of charging for his lectures; an example afterwards followed at the Academy, where Speusippus, the nephew and successor of Plato, established the fee for a course of dialectics at a mina. Polemo, the third in succession, after Plato, lived within the garden of the Academy; whilst his disciples, to be near the school, built for themselves little lodges round about it. Cratnor, a disciple of Polemo, being in ill health, took up his abode at the temple of Æsculapius in Athens, where it was his intention to establish an independent school of his own; but regaining his health, he relinquished this purpose, and afterwards bequeathed his possessions to the Academy. Attalus, king of Pergamus, subsequently enlarged and ornamented its public grounds; which were thenceforward called the "Gardens of Attalus." Xenocrates, the successor of Speusippus, in consequence of the great number of youth resorting to him, was obliged, for the proper government of the Academy, to establish a regular system of police, and to appoint officers from time to time for carrying his regulations into effect.

The government of the Lyceum was nearly the same as that of the Academy. From the life of Theophrastus, the successor of Aristotle, we learn, that voluntary contributions were occasionally taken up for the maintenance of the philosophers; that for

the order and economy of the institution, the regulation of its tenements, altars, statues, and ornamental grounds, there were special officers appointed, and laws established, by the governor; and that, besides those who were associated together as philosophers, there were immense numbers of young men resorting to the institution; some of whom appear to have been occasionally admitted to the tables of their instructors.

Both of these institutions were in some degree under the cognizance of the republic. The people occasionally exercised the right of closing them, and of silencing or restraining the teachers, according as their doctrines countenanced or opposed the prejudices, policy, or religious tendencies of the community.

Those who had gone through the course as ordinary students, occasionally chose afterwards to remain as permanent residents. Aristotle, before opening his own school at the Lyceum, had been a member of the Academy for more than twenty years. From among the permanent residents, the director usually selected his successor. Thus, Strato, the second after Aristotle at the Lyceum, ordered in his will, that Lyco should succeed him; giving as a reason, that the others were either too old, or otherwise employed; and requesting them to confirm his choice.

How much of medicine may have entered into the systematic course of instruction at either of these institutions, we have not now the means of ascertaining. That Plato was well versed in the prin-

ciples of the art, as taught by his contemporary, Hippocrates, his works bear abundant evidence. According to his biographer, Diogenes Laertius,* he divided medicine into five branches: the pharmaceutic, the chirurgic, the dietetic, the nosognomic, and the bœthetic: the first cures by means of drugs, the second by cutting and burning, the third produces a change in the diseased by a change in their diet, the fourth makes known the character of disease, and the fifth by instant assistance palliates suffering, and gives relief to pain. Aristotle, though not a practitioner of medicine, was of the family of the Asclepiadæ. He was well skilled in natural history and the anatomy of the lower animals, as well as in the medical doctrines of his own and former times. We shall again have occasion to allude to him as a naturalist.

3. But notwithstanding the speculations of the philosophers, and the trainings of the Palestræ, the Temples of Æsculapius were the first great foundations of medical knowledge among the Greeks.

These Temples were numerously dispersed throughout the Grecian states and colonies,† as at Titane, Epidaurus, Cyrene, Rhodes, Orope in Attica, Cylene in Ellis, Tithorea in Phocion, Tricca in Thessaly, Megalapolis in Arcadia, Cnidos, Cos, Corona,

* Chapter 85. In Plato, Bohn's edition, vol. 6, p. 217.

† Schulze, in his Historia Medicinæ, p. 118 and p. 127, quarto, Lipsiæ, 1728, enumerates and describes the particulars of more than eighty of them, mostly after Pausanias and Plutarch; and several of the states and cities appear to have been provided with more than one for each place. The temple at Epidaurus, the reputed birthplace of Æsculapius, is presumed to be among the most ancient of them; and from this, many of the others are known to have been off-shoots.

Pergamus, Corinth, Smyrna, and numerous other places. Here were originally the homes of the Asclepiadæ, the schools in which they trained their offspring; and hither the suffering and afflicted resorted for consolation and relief.

The priests of Æsculapius were in the habit of turning to good account the opportunities at their command within the temples. The institution of the votive tablets on which were inscribed the history of the cases which had been relieved by them, indicates plainly that the idea of collecting the information thus recorded, and deducing therefrom a systematic code of practice, must have been contemplated by the descendants of Æsculapius at an early day.

These temples, or Asclepions, long before medicine began to assume a scientific character, had served as schools of instruction, and as asylums for the sick. They furnished the nucleus from which, in process of time, were developed other institutions and organizations. As schools, the most ancient of them is said to have been at Titane, near Sicyon. Those of Rhodes and Epidaurus, were of early repute. But the school of Cnidos is that from which issued the earliest literary performance which can be clearly traced to the Asclepiadæ, namely, the "Cnidian Sentences;" which are attributed to Euryphon, the contemporary of Hippocrates, though somewhat his senior.* As asylums, the temples bore no inapt resemblance to the hospitals and infirmaries of modern times; into which, in fact, some of them

* Littré, loco citat. p. 7.

were ultimately converted. The temples of Epidaurus, Cos, Tricca, according to Strabo, were always filled with patients; and along their walls the tablets were suspended upon which were recorded the history and treatment of the individual cases of disease.*

The choice of situation, and internal management of the temples, show with what care the priest of Æsculapius, while observing the rites of his religion, provided for the well-being of the sick. They usually occupied some elevated or retired and healthy locality, not far removed from the cities, surrounded by shady groves, or in the neighborhood of thermal springs, or fountains of medicated water. They were sacred from intrusion, and accessible to the sick only after suitable preparation. The invalid, on his arrival, submitted to purification, by fasting, ablution, and inunction. He afterwards passed the night within the Hicetas or common-hall of the temple. During this ceremony of incubation, the presiding deity is supposed to appear before him in the silence of the night, and, by voice or otherwise, announce to him the means of cure; which, on the following day, the priest in attendance also ascertained, and afterwards undertook the supervision of the treatment.

The fees of these priests were the free-will offerings of the sick. It was consequently to the interest of the priests to cherish the superstitions of the people. Their devices for this purpose, Aristoph-

* Ibid, p. 9, from Strabo, book viii.

anes has humorously portrayed in his comedy of Plutus.

"Having bathed Plutus in the sea," says the servant Cario, "we went to the temple of Æsculapius; and when our wafers and preparatory sacrifices were offered on the altar, and our cakes on the flame of Vulcan, we laid him on a couch, as was proper, and made ready our own mattresses. * * * When the priest had extinguished the lights, he told us to go to sleep, adding that if any of us heard the hissing we should by no means stir. We therefore all remained in bed, and made no noise. As for myself, I could not sleep, on account of the odor of a basin of savory porridge which an old woman had at the side of her bed, and which I longed for amazingly. Being, therefore, anxious to creep near it, I raised my head, and saw the sacristan take the cakes and dried figs from the sacred table, and going the round of the altars, put all that he could find into a bag. It occurred to me that it would be meritorious in me to follow his example, so I arose to secure the basin of porridge, * * fearing only that the priest might get at it before me, with his garlands on. * * The old woman, on hearing me, stretched forth her hand. But I hissed, and seized her fingers with my teeth, as if I were an Æsculapian snake; then, drawing back her hand again, she lay down and wrapped herself up quickly, * * * while I swallowed the porridge, and, when full, retired to rest."

The serpent to which Aristophanes here refers, was the usual emblem of the presiding Numen, or

divinity of the temple; though other animals, as the cock and the dog, were occasionally employed for the same purpose. The figure of the serpent sculptured in stone, met the eye of the devotee at the entrance of the temple; and the animal itself was cherished and preserved within the sacred precincts. The Æsculapian serpent, according to Pausanias, was of a peculiar variety, of a yellowish or brown color, and found only at Epidaurus. At the founding of new temples, it was always transferred from the old to the new abodes. Such was the ceremony, as we learn from Livy, when in the year of Rome, 461, for arresting the progress of pestilence in that city, commissioners were sent to transfer the sacred serpent from Epidaurus to the Island of the Tiber, where the first temple to Æsculapius was erected among the Romans.

Æsculapius himself was usually represented as a bearded and aged man; sometimes bare-headed, sometimes crowned; seated, standing erect, or leaning on his staff, around which the serpent is seen winding in spiral folds; occasionally he is bearing a strobile of the pine; sometimes he is seen alone, but more frequently accompanied by one of his daughters, usually Hygeia, who is robed in white, with a serpent in one of her hands and a shallow patella or cup in the other, to which the serpent is directing its attention. Not unfrequently between the figures of Æsculapius and Hygeia, a child is seen standing, the infant Telephorus or the Harpocrates of the Egyptians;* and the cock is usually seen at the feet of

* Schulze, p. 126, 161, et seq.

Æsculapius. By the serpent, the Asclepiadæ are supposed to have symbolized circumspection and vigilance, and as Schulze supposes, the power of rejuvenescence; by the cock, their bird of sacrifice, they are thought also to have represented vigilance; and by the dog, fidelity and honesty. The Ægyptian symbols of Serapis, or of Isis and Osiris, and the infant Harpocrates, were occasionally associated with the emblems more properly belonging to the Greeks—a custom adopted after the settlement of Alexandria. For it was a belief among the Ægyptians, that infants had at times the power of divination; and in the sacred ceremonies of their temples, the sports and gambols of young children were often introduced.* But in the temples of Isis and Osiris the genius of medicine was sometimes also represented by the figure of Silence. "Et quoniam vero in omnibus templis ubi colebantur Isis et Serapis erat etiam simulacrum quod, digito labiis impresso, admovere videretur ut silentium fieret; hoc significere, ut homines illos fuisse taceretur."†

The Asclepions, however, were not the only temples to which the Greeks resorted for relief from sickness. The temples of Apollo, and of the other gods, were also open to them, but only as places for consulting the gods; not, as at the Asclepions, to be subjected to treatment.‡

4. It is supposed that the priests of Æsculapius,

* Schulze (on the authority of Plutarch and others), p. 128.

† Ibid (from St. Augustine), p. 128.

‡ Herodotus, lib. i. c. 16 and 25; and Xenophon, Memoir of Socrates, book iii. chapter 13. N. Y. edition, p. 576.

in the exercise of their art, were originally restricted to these institutions. If such ever were the rule, it must have soon been set aside, or often disregarded. Hippocrates and his disciples practiced as periodeutæ, or itinerants, in different parts of Greece. Apollonides of Cos, practiced at the court of the elder Artaxerxes.* Euryphon of Cnidos, in consultation with Hippocrates, attended Perdiccas, son of Alexander, king of Macedon.† Euryximachus is introduced by Plato, among the friends of Socrates, as one of the wits and men of learning of his time; and at the banquet is made to descant upon the doctrines of his profession, to enforce the virtue of temperance in the use of wine, and, at table, to prescribe for the sudden illness of Aristophanes.‡ Again, we learn from Xenophon,§ that by the laws of Lycurgus, the Lacedæmonian physicians were obliged to accompany the army, to associate with the officers, sooth-sayers, and musicians; and, to be at the immediate service of the king on the battle-field. Xenophon himself, in the memorable expedition into Persia, was accompanied by Ctesias of Cnidos, who, on the defeat of the younger Cyrus, was taken prisoner, and who subsequently rose to great distinction as physician to the court of Persia; and more so as the historian of that country. In fur-

* Le Clerc, Histoire de la Medecine. Lib. ii. chap. 7, from Ctesias.

† Soranus, in his Life of Hippocrates. See Kuhn's Hippocrates, vol. iii. p. 851.

‡ See the Protagoras and Banquet of Plato, Bohn's edition, vol. ii. p. 244, and vol. iii. p. 482–500.

§ Lacedæmonian Republic, chapter xiii. See also, Memoir of Socrates, book i. chapter ii., N. Y. edition, p. 527–8.

ther evidence of the unrestricted freedom of the Asclepiadæ, we learn from the Laws of Plato,* that there are some persons physicians, and others the ministers of physicians, who are sometimes also called physicians. "Do you not perceive," he adds, "that when there are both slaves and freemen sick in the cities, the slaves do for the most part go round and cure the slaves, or remain at home in the medical shops; and that not one of these slave-physicians either gives or receives any reason respecting the diseases of the slaves; but as if knowing accurately from experience, he orders as if he were a self-willed tyrant, what seems good to him, and then goes away, bounding off from one sick domestic to another; and by this means, he affords a facility to his master to attend to other patients? But the free-born physician for the most part attends to, and reflects upon the diseases of the free-born; and by exploring these from the beginning, and according to nature, * * * does at the same time learn something from, and, as far as he can, teach something to, the sick; and does not order any thing until persuaded of its propriety; and then, after rendering the patient gentle by persuasion, he endeavors to finish the business by bringing him back to health."

It has also been stated that the Asclepiadæ were first induced to leave the temples by the success of the Pythagorean physicians after the breaking up of their school, and their expulsion from Crotona.

The story of Democedes, already related, has a direct bearing upon this point, and is sufficient, of

* Book iv., c. x.

itself, to show that prior to the dispersal of the Pythagoreans, the cities of Greece were supplied with practitioners who were visiting the sick at their own abodes.

Thus, then, long before the age of Pericles, even before the Persian war, the medical men of Greece were acquiring a knowledge of their art at the schools of philosophy, and at the exercises of the gymnasia, as well as at the temples; and were practicing as private individuals, as stipendaries at the royal courts, or as public functionaries with stated salaries, appointed by the people; sometimes in the army, sometimes in the fleet; liberally rewarded, and held in high repute. The custom in the cities of stipulating annually for the public services of medical men, is a fact worthy of notice. Plato in the "Statesman," and elsewhere, alludes to it. And his commentator remarks, that from numerous passages in this author, as well as from others in the writings of Xenophon, Aristotle, Strabo, and the scholiasts, it is evident there were at Athens a body of medical men who were paid by the state, as well as others who were engaged in private practice.*

* Burgess, in Plato. Bohn's edition, vol. iii. p. 192.

CHAPTER III.

THE ASCLEPIADÆ.

THE course of education among the Asclepiadæ, was in conformity with the national habits. The youth who were destined for the profession, if not the sons of the initiated, were probably not allowed to begin until after the completion of their preparatory education, from their seventeenth to the twentieth year. But the sons of physicians began earlier, and, with both, the course of training probably continued to the close of their twenty-fifth year.

The neophyte was inducted into his art with all the secrecy and exclusiveness which, from the remotest ages, had prevailed among the handicraft associations, the religious orders, and, at a later period, in the political clubs, and even in the schools of philosophy. For, as at Athens, so in all the other states, these unions, mysteries, or secret associations, were innumerable. Some of them were for charitable purposes, some of them for traffic, some for the cultivation of knowledge; and some, as among ourselves, were secret organizations for controlling the affairs of the people. The ceremony of initiation into them, varied somewhat with the character and object of each; but from the few hints preserved respecting them, there is reason to believe that in all of them it was modeled, as nearly as possible, after that of the Eleusinian and Dionysian Mysteries.

Of the Mysteries of Eleusis, there were two orders, the less and the greater. The less were the most essential, and consisted of three grades. The ceremony for the first grade was styled Illumination or the Tradition of the Sacred Rites; that for the second was styled Inspection, or the Looking-on; and that for the third, which was the end and design of the other two, was called the Binding of the Head, or Coronation. But according to the greater order, there were two additional ceremonies; namely, the introductory, which was called Purification; and the ultimate, which was called Friendship with the Deity.

For, of those who sought to engage in these mysteries, all were not admissible; there being certain characters excluded by the voice of the crier, such as those of impure hands or inarticulate voice. So that before admission, each candidate underwent the ceremony of Purification. The two succeeding ceremonies were strictly progressive; but the Binding of the Head, or Coronation, signified the full reception of those who were thus honored, and that they could afterwards communicate to others the sacred rites; or officiate as torch-bearers, or interpreters; or sustain any other part in the sacred offices. The fifth degree, or Friendship with the Deity, was a result reached only after many years of active service, by those who had attained the highest perfection in their respective occupations.

In the political clubs, and in the schools of philosophy, the ceremony of Purification, which in the figurative language of Empedocles, was the act of

drawing from the five fountains with an indisseluble vessel of brass, had reference to elementary training in arithmetic, geometry, stereometry, music, and astronomy. After such preparation in the schools of philosophy, came; first, Illumination, or the study of theorems, logical, political, and philosophical; in other words, the study of abstract principles. The next stage of advancement, or as it was called, Inspection, had reference to practical studies, or what Plato calls "intelligibles, true beings, and ideas." But the last stage, or Coronation, was the closing ceremony of education, and imparted to the recipient the right of leading others to the subjects of his own contemplation.*

These three essential stages of advancement answered to the three scholastic degrees in the universities of the middle ages, and to the three degrees among free-masons; with both of whom the ceremonies were in fact derived from those of the early mysteries. And, we are told by Mr. Burgess, that the Crowning, or Binding of the head, never took place before the completion of the fifth year.†

Now, to return to the Asclepiadæ; it is clear that the youth in the course of initiation, submitted to observances, and advanced by gradations, analogous to those of the other secret associations. For we are expressly informed by Hippocrates,‡ in reference to his own profession, that "Things which are sacred are to be imparted only to sacred persons;" and that

* Thos. Taylor. Eleusinian and Bacchic Mysteries, p. 48–52.
† In Plato. Bohn's edition, vol. iii. p. 549.
‡ In the Law.

"it is unlawful to impart them to the profane until after their initiation into the mysteries of the science." With reference to Purification, or the training which should precede Illumination, he says,— "Whoever is to acquire a competent knowledge of medicine, ought to possess the following advantages: a natural disposition, instruction, a favorable position for study, early tuition, love of labor, leisure."* And, writing to his son, the author of the Hippocratic Letters, says, "Give due attention, my son, to Geometry and Arithmetic. For such studies will not only render your life illustrious and useful to your fellow-beings; but your mind more acute and perspicacious in arriving at fruitful results in every thing pertaining to your art."†

The candidate having passed the first ordeal of preparation, and commencing the ceremonies of Illumination, was obliged to subscribe to the Oath; which was a formula analogous to that which was enjoined among the Pythagoreans, and was in the following words:

"I swear by Apollo, the physician, by Æsculapius, by Hygeia, Panacea, and all the Gods and Goddesses, that according to my ability and judgment, I will keep this oath and stipulation, to reckon him who teaches me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring on the same footing as my own brothers,

* In the Law.

† Kuhn's edition, vol. iii. p. 822.

and to teach them this art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of this art to my own sons, to those of my teachers, and to disciples bound by a stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients; and abstain from whatever is deleterious and mischievous; I will give no deadly medicine to any one, if asked; nor suggest any such counsel; and in like manner, I will not give a woman a pessary to produce an abortion. With purity and with holiness I will pass my life and practice my art. I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females and males, of freemen and slaves. Whatever, in connection with my professional practice, or not in connection with it, I see or hear, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath inviolate, may it be granted to me to enjoy life and the practice of my art, respected by all men at all times! But should I trespass and violate this oath, may the reverse be my lot!"*

* Adams' Hippocrates, vol. ii., p. 779.

The pupil thus admitted, proceeded next to the ordinary business of Illumination, which consisted in committing to memory certain traditionary precepts; in listening to the prelections of the instructor; in the contemplation of diseases within the temples, or at the bed-side of the sick; in combining the knowledge thus obtained with some general acquaintance with the rules of health; and where the preparatory training in the accessory sciences had not already been completed, in acquiring a knowledge of these, and of the higher philosophy of the day.*

The business of Inspection, which was next in order, and which, in philosophy, was "an occupation about intelligibles, true beings, and ideas," immediately preceded Coronation; and, as in philosophy, had relation to practical subjects, probably the treatment of disease under the immediate supervision of the instructor. The ceremony of Coronation took place at the completion of the term of study, and corresponded with the modern ceremony of Graduation. It was in evidence of the recipient's fitness for assuming the duties of his profession, it conferred upon him the privileges of fellowship, and, as a master of his art, the right of initiating others into its sacred mysteries.

It is here worthy of remark, that the ceremony of placing a wreath, cap, or crown, upon the head of those who were admitted into full fellowship at these ancient schools, was continued down to the

* Littré, Introduction, Œuvres d'Hippocrate.

period of the Middle Ages. It was the usual form of admission at Salernum, the earliest of the medieval schools of medicine. The ceremony was also the same at the school of Paris, the regulations of which were adopted in full from those of the Salernian institution. At Paris, as at the other universities, the cap or bonnet was substituted for the wreath. But even at the temples the cap may have occasionally been used. The statues of the ancients usually represent the head uncovered. And some have been at a loss to know why the head of Hippocrates is sometimes seen covered with a cap. The ceremonies of his school, if more minutely understood, might, perhaps, be sufficient to explain this.

As a rational study, so long as medicine was taught orally, or by tradition and example only, the acquirements of its votaries could not have been extensive. Their main study in the management of acute diseases, was in regulating the regimen. Epidemic diseases they looked upon as divine dispensations, with which they did not dare to interfere. A knowledge of the general rules of health, and the influence of diet, exercise, climate, and locality, attracted much of their attention. In the management of injuries and external diseases, they were but little inferior to their descendants of modern times. Their medical agents were, the lancet, of which they made frequent use; certain active cathartics, emetics, and diuretics; cataplasms, unguents, escharotics; and mechanical instruments and appliances. Of anatomy and physiology their knowledge was limited; and as for chronic diseases, up to the

time of Herodicus of Selymbria, who is said to have been one of the teachers of Hippocrates, they did not venture to interfere with them.

This Herodicus had been a teacher of youth, and being always in delicate health, he had prolonged his life by systematic exercises and a regulated diet. The treatment which he had found useful in his own case, he recommended to others; and thus he turned the attention of medical men to a course of practice, and a group of diseases, which they had hitherto disregarded. His innovations were for a time unpopular; and even Plato undertakes to upbraid him for them, declaring "that no attempt should be made to cure a thoroughly diseased system, and so to afford a long and miserable life to the man himself, as well as to his descendants. For Æsculapius," he continues, "did not think a man ought to be cured who could not live in the ordinary course, as in this case he would be of no service to himself or to the state." He goes on to deplore the necessity of using the terms then recently invented for designating chronic diseases:—"Dropsies, and Catarrhs! Do not you think these abominable? Truly these are very strange names of diseases; such, I think, as existed not in the days of Æsculapius."* But though not in the habit of treating chronic internal ailments, the profession were at least supposed to be acquainted with them, so far as to be able to detect them, and pronounce correctly in regard to them, in the inspection of slaves. Even Plato would hold the physician responsible for his opinion in such cases,

* Republic. Book iii. c. 14.

the object of the philosopher being to guard against dishonesty in the sale or transfer of slaves from one master to another.*

With respect, then, to the policy and ethics of the Asclepiadæ, we learn from the Oath and Law, as also from other passages in the Hippocratic code, that the student was formally bound to his master by indentures; that the son of a former master, choosing to enter the profession, received his education gratuitously; that others not thus circumstanced, were expected to pay for their instruction; that the sons of the Asclepiadæ did not necessarily follow their fathers' employment; that those who were employed in the temples, or in practice elsewhere, were therefore, simply a fraternity, in the modern acceptation of that word, and not, as some suppose, an exclusive caste derived from one family; that each practitioner was at liberty to follow his occupation where and when he chose, but for honorable purposes only; and that even at this early day, there were designing men who were "physicians only in name," and who gave themselves up to disreputable practices; against whom the regularly initiated had no redress, and no other advantage than that upon which we ourselves rely, a superior education, honesty of purpose, devotion to their duties, and the confidence of a discerning public.

Many of the self-imposed restrictions of the Asclepiadæ had reference to the evil doings of the medical impostors of their own times. M. Littré leads us to suppose that the injunction against lithotomy

* Laws. Book xi. c. 2.

may have referred to the mutilating process of castration, which had been from time immemorial in use among the Asiatics, as it was afterwards among the Greeks and Romans, and which was in the hands of a special class of manipulators, as it is known also to have been in Southern Europe, in comparatively recent times.* The remarks of Paulus Ægineta in reference to this operation, are somewhat in confirmation of M. Littré's views. Again, the prohibition against the sale and administration of poisons, is clearly in reference to those who are known to have been engaged in such traffic,—particularly the Agurtæ, itinerant mountebanks, or pedler-priests as Plato calls them, who went about imposing on the unwary, and cheating them by lying prophecies.†

But some of these restrictions doubtless arose from the suggestions of prudence. It has been remarked by Mr. Adams, that professional virtue among the ancients never arose to the degree of disinterestedness recommended by Sydenham; who maintains that the physician ought to be always ready to serve his patient, even at the risk of his own reputation.‡ Sydenham, however, wrote as a member of a Christian community, and knew that where his motives were unimpeachable, and his conduct that of an honorable, attentive, and skillful physician, his want of success in the management of a critical case, was not likely to injure his reputation as a man. But the physician of early Greece had

* Renouard. Histoire de la Medicine. Paris, 1846, tome 2, p. 288.
† Republic. Book ii. c. 7. ‡ Adams's Hippocrates, vol. ii. p. 641.

more at risk than reputation, sometimes even life.* By custom, if not by written law, he was in some measure personally accountable for the want of success in what he undertook. The usages of the times imposed upon him circumspection, as well as forecast. Hence the injunction which he was required to observe, not to undertake the care of unmanageable diseases; or, if induced to take charge of them, to give timely notice of their probable result. There was no want of liberality in this; and it is not for us to complain of that habitual caution which led to the close and attentive study of prognostics, a class of studies for which we have still reason to be thankful to the Greeks.

With regard to social rank among the Asclepiadæ, it was in proportion to personal merit, rather than to any artificial status. But owing to the great number of pretenders, the regularly initiated were, then as now, disposed to look upon themselves as sufferers by the consideration occasionally bestowed upon impostors. "Medicine," says Hippocrates, "is of all the arts, the most noble; but, owing to the ignorance of those who practice it, and of those who inconsiderately form a judgment of these, it is at present far behind all other arts. Their mistake," he adds, "appears to me to arise principally from this, that in the cities there is no punishment connected with the practice of medicine, and with it alone, except disgrace; and that does not hurt those

* Plato. Laws, book xi. c. 12. Galen, vol. xiv., p. 602, Kuhn's edition. Corpus Juris Civilis. Julii Paulii Recept. Sentent. Lib. v. tit. xxiii., § 13.

who are familiar with it. Such persons are like the figures which are introduced in tragedies: for, as they have the shape, and dress, and personal appearance of actors, and are not actors, so also physicians are many in title, but very few in reality.*

Such, then, was the condition of our profession in Greece up to the period at which it fairly emerged from the traditionary lore of the temples, and assumed its position as a rational and progressive science. The honor of effecting this change, the world has ascribed to Hippocrates.

CHAPTER IV.

HIPPOCRATES AND HIS IMMEDIATE SUCCESSORS.

Of the personal history of Hippocrates, we know but little. He was born in the year 460 before the birth of Christ, and was, consequently, a few years older than Plato, and younger than Socrates. He received his professional education under his father, Heraclides, at the Asclepion of Cos; and we are told that in his youth, at Athens and elsewhere, he had the benefit of the ablest masters in science and philosophy; among whom were the sophist Gorgias, and the hygienist Herodicus, of Selymbria. It is also said that he studied under Democritus of Abdera; or, as some suppose, Heraclitus. After the death of

* The Law. Adams's Hippocrates, vol. ii., p. 784.

his father, in accordance with the custom of the philosophers and physicians of that epoch, he traveled over many countries; and afterwards, in the pursuit of his profession, spent much time in the cities of Macedonia, Thrace, and other parts of Greece. At Athens, about the time of the Peloponnesian war, his reputation was such, either for the professional services rendered to that city in relieving it of an epidemic, or for having refused to assist the enemies of his country when solicited to do so by Artaxerxes, that it was decreed that he should be initiated into the Mysteries of Eleusis, that he should enjoy the right of citizenship, that he should be supported in the Prytaneum at the public expense, that he should be honored with a golden crown, and that all the children born at Cos, his native island, might pass their youth at Athens, where they should be treated as the offspring of Athenian citizens. How much of his time may have been spent in the city where he was thus distinguished, has not been ascertained; but his most protracted residence was at Larissa and other cities of Thessaly, where he spent his latter days, and where he died, at the advanced age of eighty-five or ninety years.*

Many speculations have been offered, to account for the rapid advancement of medicine in the hands of this great father of the profession. According to Celsus, his principal credit was in removing the teaching of medicine from the schools of philosophy, where it had always received some attention, and

* Soranus. Genus et Vita Hippocratis. See Kuhn's Hippocrates, vol. iii., p. 850.

treating of it apart, as a distinct department of practical knowledge. Pliny,* after Varro, supposes that he was the first to institute clinical instruction, "*hanc quæ Clinicæ vocatur*," that he was led to this after the burning of the temple of Cos, and that the materials of his course were supplied mainly by the votive tablets which had been there accumulating. But his claim to our respect rests on higher ground.

The great among mankind are not merely those who set the first examples. Examples are often the result of accident; and the best of them, in a practical point of view, rarely the result of forethought. He who detects the rising spirit of the age, who first gives expression and embodiment, or the power of progress and endurance, to the wisdom, feelings, aspirations, customs, or hitherto undivulged opinions of his times, is even more worthy of regard than the innovator. Such a man was Hippocrates. He lived in an age of progress. The earliest historians, the earliest and ablest dramatists, the profoundest philosophers, the wisest legislators, the ablest generals, the greatest architects, painters, and sculptors of Greece, were all men of the same epoch. And while other arts and sciences were thus springing into life, and rising at once to maturity, it is not surprising that some man of genius should appear in the ranks of medicine, to give to its principles form and utterance. This man was Hippocrates.

He was not, then, the inventor of the healing art, nor of the modes of teaching it. He was not the

* Hist. Nat. Lib. xxix. cap. 1.

first to write upon it. But familiar with its traditionary lore, with the science and philosophy of his day, and with the practical details of his profession in all its bearings, he was the first to combine such knowledge in systematic form, and to give to it a scientific value; yet not so clearly scientific, as to be sufficient of itself, in the form in which he left it, and independent of oral comment or practical illustration, to qualify the aspirant who would avail himself of it alone, for the proper exercise of his calling. "The more I become familiar with the Hippocratic books," says M. Littré,* "the more I am convinced that they were prepared with reference to the accompaniment of oral instruction, without which even the clearest of them are both obscure and incomplete."

Yet these books opened to the learned much that had hitherto been taught in full only to the initiated, and paved the way for the more exact and rational study of medicine as a liberal art. The loss of respect for the mysteries of the temples was afterwards in proportion to the general diffusion of correct knowledge. The schools of Cnidos and Cos had now entered upon the cultivation of medicine as a science; and with them were associated not only the family descendants of this great man, but also most of the distinguished names in the profession between the days of Hippocrates and the founding of the Alexandrian Museum.

Among the writings attributed to Hippocrates, it

* Œuvres d'Hippocrat, tome iv. p. 625.

is difficult to determine what portion was written by himself, and what by his immediate disciples. On this point the critics have never been able to agree. By Erotian and Galen many works were accepted as his which the moderns are disposed to refer to other writers. Foës,* to whom we are indebted for a most careful Latin version of the whole collection, was willing to accept as genuine all works pronounced to be such by the ancients; but the later critics have not so readily deferred to ancient authority.

According to Mercuriali,† not more than fourteen treatises out of the whole collection were published by Hippocrates himself. Five others, according to the same critic, may have been left by him unfinished, to be completed either by his son-in-law and successor, Polybius, by his sons Thessalus and Draco, by his grandson Hippocrates, or by other members of his family. A third portion, including about twenty-two treatises, though perhaps not even begun by Hippocrates, is in strict accordance with his doctrines, and is believed by Mercuriali to have emanated from the immediate descendants of Hippocrates or other disciples of the school of Cos. The remaining portion of the collection, according to the same authority, consists of spurious writings, and of such as contain opinions not in accordance with the doctrines of Hippocrates, though published as his.

* Magni Hippocratis Opera omnia quæ extant, in sectiones octo ex Erotiani mente distributa, nunc recens Latina interpretatione et annotationibus illustrata, Anutio Foësio auctore. 2 vols. fol. Frankfort, 1595.

† See Schulze, p. 215.

Other distributions of these works have since been made, by Haller, Gruner, Schulze, Ackermann, Grimm, Sprengel, Link, Peterson, and other writers.

M. Littré,* after a most careful and searching examination of the whole collection, distributes the various works composing it into eleven classes, placing in class first the thirteen treatises which are believed to be from the pen of Hippocrates. These are, 1st,—the book on Ancient Medicine; 2d, the Prognostics; 3d, the Aphorisms; 4th, the Epidemics, first and third books; 5th, Regimen in Acute Diseases; 6th, on Air, Water, and Places; 7th, on Articulations; 8th, on Fractures; 9th, the Mochlicus, or Instrument for reducing Luxations, &c.; 10th, the Physician's Office; 11th, Injuries of the Head; 12th, the Oath; 13th, the Law.

The works of the second class he attributes to Polybius. These are, the book on the Nature of Man, and that on Regimen for Persons in Health. In the third class he includes two books which he believes to be more ancient than the genuine writings. These are the Coan Prænotions and the first book of Prorrhetics. In class fourth, he places certain works which he cannot on undisputed authority assign to Hippocrates, but which may have emanated from his school. These are the treatises on Ulcers, on Fistulæ and Hæmorrhoids, on Pneuma, on the Sacred Disease, on the Places in Man, on Art, on Regimen and Dreams, on Affections, on Internal Affections; on Diseases, first, second, and third

* Loco citato, chap. xli.

books; on the Seventh Month Fœtus, on the Eighth Month Fœtus. In the fifth class he includes such works as appear to be merely collections of notes, or extracts from other of the genuine writings: these are the second, fourth, fifth, sixth, and seventh books on Epidemics; the book on Humors, that on the use of Liquids, and perhaps the Physician's Office, which is also mentioned in the first class.

In class sixth he places several books by some unknown author, who must have written earlier than Aristotle, and whose writings form a special series in the collection. These are the treatises on Generation, on the Nature of the Infant, Diseases—fourth book, the Diseases of Women, the Diseases of Young Women, on Unfruitful Women. In class seventh he places the treatise on Superfœtation which, on the authority of Aristotle, he is disposed to ascribe to Leophantes. His eighth class is made up of works which appear to have been written about the time of Aristotle and Praxagoras; and which he considers to have been of this epoch, either because they make allusion to the pulse; or because, in accordance with the teaching of Aristotle, they refer the origin of the blood-vessels to the heart; or because, by Erotian, Galen, or other of the ancient critics, they have been pronounced to be more recent than the time of Hippocrates. These are treatises or fragments on the Heart, on Aliment, on Fleshes, on the Weeks, the second book on Prorrhetics, on the Glands, and an extract from the compilation on the Nature of Bone.

In class ninth he places several small treatises,

fragments, or compilations, which do not appear to have been mentioned by the ancient critics or commentators. These are, on the Physician, on Honorable Conduct, the Precepts, on Anatomy, on Dentition, on the Nature of Woman, on Excision of the Fœtus, the eighth section of Aphorisms, on the Nature of Bone, on Crises, on Critical Days, on Purgative Medicines, on Vision. In class tenth he introduces a notice of such works as formerly belonged to the collection, but which are now lost. These were, the book on Dangerous Wounds, that on Missiles and Wounds, and the first book on Diseases—the less. In the last class he places the Letters, Decree, and Discourse; which, though very ancient, are not the less apocryphal. These are, the Letter and Decree concerning the Plague, the Letters relating to the Madness of Democritus, the Letter from Hippocrates to his son Thessalus, and the Discourse relative to the war between the Athenians and the people of Cos.

The classification adopted by Dr. Greenhill, of Oxford, and Mr. Francis Adams,* the English translator of Hippocrates, does not materially differ from the foregoing so far as relates to the writings of Hippocrates and of his immediate family and disciples; though Mr. Adams believes that M. Littré, in rejecting certain portions of the eighth class, has underestimated the anatomical knowledge of the sage of Cos, and he gives good reasons for this opinion.

In examining the collection with reference to its

* Genuine Works of Hippocrates, vol. i. p. 46.

doctrines, we find Hippocrates in the first place investigating the influence of surrounding circumstances on the health and diseases of the living body. In the book on Ancient Medicine he opposes those who would attribute all diseases to a single cause, whether heat or cold, or dryness or moisture. He founds his system on realities—on observation, the records of science, and the deductions of sound reasoning. Adopting from the schools of philosophy the doctrine of the primitive elements, and that of the primitive humors which was derived from this, he sees in the human body the humors undergoing changes in accordance with the conditions of health and disease. He is led to believe that health is maintained by the equable proportion and intermixture of the humors, and that disease is the result of their inequalities. He admits that during their changes the disordered humors undergo a process of coction by which they may be restored to their healthy condition; and as time is requisite for effecting this process he undertakes to show how the critical discharge is brought about; and to establish the days within which it is to be expected.

In the book on Airs, Waters, and Places, he inquires into the effects of particular exposures, of the seasons and their vicissitudes; the influence of winds and the properties of waters. He alludes to the diseases prevalent in different places and during different times of the year. He contemplates the moral and physical characteristics of different nations, resulting from the climate, locality, and other influences to which they are subject. He rejects the

superstition of his times in reference to supernatural agencies. He holds that no one disease is more the result of divine wrath than another, and that all of them originate from natural causes. The predispositions resulting from the different periods of life, he studies with equal attention. He holds that the innate heat of the body is at its maximum during infancy, at its minimum in old age; and that each particular phase in this quality, like the influence of the sun in different seasons of the year, predisposes to its particular class of ailments. Among the agencies applying more especially to the individual, he dwells with becoming attention on diet and exercise; showing how excess or deficiency in the one or the other, may prove the prolific source of disease.

In connection with this theory of innate heat, and that of the humors, he lays much stress on the doctrine of Coction; implying by this term, the changes which the disordered humors undergo, preparatory to their elimination. So long as they are floating about in a state of crudity, the disease continues in full intensity; but when they are properly elaborated, the disease reaches its crisis, and they are discharged, either by the spontaneous effort of nature, or by the aid of medicine acting in subservience to nature's laws. Where the crisis cannot thus be effected by the removal of the offending humors from the body, it may be brought about by their localization in particular organs or parts of the body, as by the development of a critical abscess, by an erysipelatous inflammation, by a diseased joint, or

by a circumscribed mortification. But where the crisis is not to be effected either by elimination or localization, the disease is said to be incurable, as in cancer. The critical discharges, where the disease is general, may be effected either by perspiration by the flow of urine, by alvine dejections, by emesis, or by expectoration.

The cycle of changes by which the crisis is effected, he holds to be usually completed within certain definite periods of time; and the days at which the crisis may be anticipated, he calls Critical Days. He dwells with much care on every circumstance likely to retard or accelerate the critical period, and on the dangers to be apprehended during those critical days, regular or irregular, in which the disease is not adjudicated. The study of the various appearances pointing to the probable result of the disease, to the character of the crisis, and to the time at which this may be expected, is summed up in his doctrine of Prognosis. By this was meant something more than is implied in the etymology of the term, and much more than is at present understood by it. In the estimation of the early Grecians, Prognosis was the crowning department of medical science; furnishing them the key for explaining the past and present, as well as the yet to be developed circumstances of disease; and pointing out to them what should be left to the efforts of nature, and what might require the interference of art, where nature, unassisted, was unable to bring the disease to a favorable issue.

It is further worthy of remark, that in the Hip-

pocratic school, the condition and changes of the humors, the crisis, the critical discharges, the critical days, and above all, the prognostications, were studied in the abstract, or as connected only with the condition of the living body, without reference to the distinctive traits of individual diseases. With them, prognosis was the application of medical science for determining the value of general manifestations, not of particular morbid processes. It held the same relation to diseases in general, that diagnosis, in our use of the term, now holds to individual ailments.

In his book of Prognostics, Hippocrates dwells only on the generalities of disease. In his Epidemics he describes what he himself had witnessed, even to the progress and results of individual cases, still studied in the same spirit of generalization, without reference to the characteristic features of individual, much less of specific diseases. In his book on Regimen in Acute Diseases, he appreciates his therapeutics as subservient to the indications of nature, whose efforts it becomes the physician to assist, but never to interrupt. The teaching of Hippocrates and his disciples, is thus shown to have been theoretical, yet founded on what, at the time, appeared to them to be legitimate inferences from the observation of facts,—of facts carefully studied and cautiously generalized. And while the whole science of physiology, and nearly the whole of anatomy, remained yet to be explored, we are not so much to be surprised at their theories, as that these theories, derived almost exclusively from the

study of external appearances, should have been so very near the truth.

As already intimated, several treatises in the Hippocratic collection must have emanated from writers not of the school of Cos, but who are to be considered either among the contemporaries of Hippocrates, or of his more immediate descendants. The book on Regimen for Persons in Health, has been ascribed to Philiston, who was celebrated for his acquaintance with anatomy, and who flourished about the time of Plato. The treatise on the Seventh Month Fœtus, has been attributed to Diocles of Carystus, also an early writer,—compared, for ability, with Hippocrates himself. He was the first to point to the distinction between pneumonia and pleurisy; he was the ablest anatomist of his age, and the author of numerous works; among which was a treatise on Hygiene, and another on Gymnastics as applied to the treatment of disease. About the same time also, flourished Petronas, a sort of homeopath, who, according to Celsus, treated fevers by overloading the sick with clothing, in order to increase their heat and thirst. Praxagoras, a contemporary of Aristotle, appears to have been among the first to allude to the pulse, a circumstance, however, also mentioned by Aristotle himself, though not as furnishing any useful indications in the treatment of disease. Plistonicus, a pupil of Praxagoras, may also have contributed somewhat to the opinions promulgated in the Hippocratic writings, particularly in reference to the humors; to the study of which he and his disciples were more than

usually attentive. But the portions of the collection most at variance with the doctrines of Hippocrates, were probably derived from the Asclepion of Cnidos, the abode of many able teachers; among the principal of whom, after Euryphon, was Chrysippus.

Of the Cnidian school, we have no well-authenticated remains, and no other trust-worthy account than such as may be found in the few intimations furnished by Hippocrates himself, and by his commentator and disciple, Galen. M. Littré,* however, has recently furnished some grounds for believing that the second and third book of Diseases, and the book on Internal Affections, as at present embodied in the Hippocratic collection, are in some respects not in strict harmony with the rest; and that the doctrines contained in them, tested by what is known of the Cnidian Sentences, prove to be in accordance with these, and consequently, such as may have issued from the Cnidian school.

Be this as it may, the doctrines of the two schools were not in every point alike.† And the rivalry between their respective writers and teachers, during the early period of scientific progress, was carried on with much vigor. Hippocrates, in his book on Ancient Medicine, and again in that on Regimen in Acute Diseases, takes occasion to criticise the opinions and practice of Euryphon, as expressed in the Sentences. Ctesias of Cnidos, in turn, as we learn from Galen, criticises the practice of Hippo-

* Œuvres d'Hippocrat, tome vii. p. 304.

† Galen (Kuhn's edition), vol. v. p. 761; vol. xv. p. 368, 427.

crates. Chrysippus, of the Cnidian school, and his disciple Erasistratus, oppose the use of active purgatives and venesection; whilst Herophilus, at Alexandria, writes in favor of the lancet, and is a follower of the Sage of Cos.

The modes of contemplating disease in the two schools, were not alike. The Cnidians attended mainly to minute distinctions, to the characteristic traits of individual diseases, with little regard to the bearing or mutual relations of special symptoms. Thus they enumerated seven different diseases of the biliary organs, twelve of the bladder, and four of the kidneys; they described four kinds of strangury, three kinds of tetanus, four of jaundice, and three of phthisis. Their neighbors of Cos, on the other hand, held the study of such distinctions to be of small account, and gave their special attention to the grouping of important symptoms,—to what would now be called the constitutional condition, or the state of the system,—without regard to the particular disease, but mainly with reference to the prognosis and indications of treatment.

In the management of acute diseases the Cnidians employed numerous remedies, and in other affections, few. The school of Cos, though at times more heroic, especially in the use of the lancet and active purgatives, were in the habit of managing acute diseases by a restricted regimen; barley-water more or less diluted, hydromel, and oxymel, being among their most frequent prescriptions. In the management of chronic diseases, they favored the medical gymnastics of Herodicus; whilst at Cnidos these dis-

eases were managed principally by laxatives, and a diet of milk, or of milk and water.*

We might here stop for a moment to ask, what would have been the effect upon the progress of medicine in ancient times, had these two distinct modes of investigation been pursued with equal skill and perseverance by both parties. For the Cnidian method must have been laid aside at an early day, and that of the rival school universally adopted. Each method in the abstract, has its respective advantages, and each its own defects. In the early stage of inquiry, while facts are comparatively few, and insufficient to warrant sound deductions, or where their relative significance has yet to be determined, the Cnidian method might not only have been the safest, but the one which would have led the most speedily and surely to those results which the rival schools were ambitious of reaching at a bound. Hippocrates and his followers, it is true, were not entirely indifferent to the study of individual diseases; but, from their over-estimate of the scientific importance of prognostic indications, the individual types of disease were not so thoroughly investigated as they might have been. Had they dwelt on these with greater care, it is possible that most of the diseases which are now looked upon as of comparatively recent origin, and for accounts of which we search in vain among the ancient medical authorities, might be shown to have existed from the earliest times. In the progress of medical

* Œuvres d'Hippocrate, par M. Littré; tome ii. p. 198; tome vii. p. 304.

science, as in the growth of individual judgment, the period of observation must precede that of philosophizing. And until facts have been accumulated in sufficient number and variety to dispel the errors involved in preconceived opinion, the inferences to be derived from them are, at most, nothing better than sagacious speculations. The descriptions of epidemic and other diseases, by the early historians, who drew from observation only, who made no pretensions to medical knowledge, and whose minds were unembarrassed by the training of the schools, are at the present day more worthy of reliance than the accounts rendered of the same diseases by contemporary medical authorities. There is, even in the Hippocratic code, nothing to compare in truthfulness and fullness of detail, with the account furnished by Thucydides, of the Plague of Athens; a disease which prevailed when Hippocrates was about thirty years of age, and the description of which was probably written before he began his career as an author. This memorable passage from the History of the Peloponnesian War, I must here take the liberty of condensing.

"At the beginning of the next summer," says Thucydides,* "the Peloponnesians and their allies invaded Attica, and laid waste the country. When they had not yet been many days in Attica, the plague began to show itself among the Athenians, though it was said to have previously lighted on many places about Lemnos and elsewhere. Such a

* Book ii. chap. 47–58.

pestilence as this, was nowhere remembered to have happened. The physicians were at first of no avail; treating it, as they did, in ignorance of its nature. Nay, they themselves died most of all, inasmuch as they most visited the sick. Nor was there relief in any human art. As to the supplications offered in the temples, or the divinations and other similar means, they were all equally unavailing, and were at length relinquished by the people, who were overcome by the pressure of the calamity.

"It is said to have first begun in Æthiopia, then to have extended into Egypt and Lybia, and the greater part of the king's territory. On the city of Athens it fell suddenly, first attacking the men on the Piræus, so that it was even supposed by them that the Peloponnesians had thrown poison into the cisterns; for as yet there were no fountains there. It afterwards reached the upper city, where it was much more general. Now, let every one, whether physician or unprofessional man, maintain his own opinion as to the source and causes of the disease; I, however, shall only describe its character, and explain the symptoms by which it may be recognized should it ever return; for I was both attacked by it myself, and had personal observation of others who were suffering from it.

"That year, then, as was generally allowed, happened to be unusually free from other diseases; and if any such appeared, they all terminated in this. Without any ostensible cause, while apparently in good health, those about to suffer from it were sud-

denly seized, at first, with violent heats in the head, redness and inflammation of the eyes; and immediately the internal parts, both the throat and tongue, assumed a bloody tinge, and emitted an unhealthy and fœtid odor. Next came sneezing and hoarseness, and in a short time the pain descended to the chest, with a violent cough. When it settled on the stomach it caused vomiting; and all the discharges of bile mentioned by physicians, succeeded, and were accompanied with great suffering. An ineffectual retching also followed in most cases, producing violent spasms, which in some instances ceased soon afterwards, in others, much later. Externally, the body was not very hot to the touch; nor was it pale, but reddish, livid, and broken out in small pimples and sores. But the internal parts were burnt to such a degree that the sick could not bear clothing or linen of the very lightest kind to be laid upon them, nor to be any thing else than stark naked, and would gladly have thrown themselves into cold water if they could. Indeed, many of those who were not taken care of, did so, plunging into cisterns in the agony of unquenchable thirst; and it was all the same whether they drank much or little. Moreover, the misery of restlessness and wakefulness continually oppressed them. The body did not waste away so long as the disease was at its height, but resisted it beyond all expectation, so that they either died in most cases, on the ninth or seventh day, through the internal burning, while they had still some degree of strength; or, if they survived this period, the disease descended into

the bowels, producing violent ulceration there, and intense diarrhœa, by which the greater part were carried off through weakness. For the disease, beginning in the head, passed downwards throughout the whole body, and whoever survived its fatal consequences, was afterwards affected in his extremities; for it settled on the pudenda, fingers, and toes, and many escaped with the loss of these; others, also, with loss of their eyes; others again, were, on their first recovery, seized with forgetfulness, so as not to know either themselves or their friends.

"The severity of the disease surpassed description, and in the following way it proved itself to be different from other diseases. All the birds and beasts that prey on human bodies, did not come near these, though many bodies were lying unburied; or if they did, they died after they had tasted them. As a proof of this, there was a marked disappearance of birds of this kind; while the dogs, from their domestic habits, afforded even clearer opportunity for marking the result here mentioned.

"To pass over many points, one case of the disease differed from another; yet, in its general character, it was such as is here described. Among those attacked, some died in neglect, others in the midst of every attention. There was no settled remedy, and what did good to one, did harm to another. No constitution was proof against it, but it seized on all alike, even those that were treated with all possible regard to diet. The most dreadful part of the calamity was the dejection of those

who found themselves sickening, and the fact of their being charged with the infection from attending on one another, and so dying like sheep; for when seized, they fell into despair, and by abandoning themselves the more certainly to the disease, they were the less able to resist it. It was this that caused the greatest mortality; for if through fear they were unwilling to assist each other, they perished from being deserted; or if they did visit, they met their death, especially such as made any pretensions to goodness, or who, from a feeling of shame, were unsparing of themselves, going into their friends' houses, where even the members of the family were worn out with the moanings of the dying, and overcome with excessive misery. Still more, however, than even these, did such as had escaped the disorder, show pity for the dying and the suffering, both from their previous knowledge of what it was, and from being now in no fear of it themselves; for it never seized the same person twice, so as to prove actually fatal.

"In addition to the original calamity, what oppressed them still more, was the crowding of the city with new comers from the country. For, as these had no houses, and were forced to live in stifling cabins at the hot season of the year, the mortality amongst them spread without restraint; bodies lying on one another in the death-agony, and half-dead creatures rolling about in the streets, and around all the fountains, in their longing for water. The sacred places also, in which they had quartered, were full of the corpses of those who died there; for, in the surpassing violence of the calamity, men

came to disregard every thing, both sacred and profane. All the laws of burial were violated, and many from want of proper means, had recourse to shameless modes of sepulture; for, on the piles prepared for others, some, anticipating those who had raised them, would lay their own dead, and set fire to them; and others, while the body of a stranger was burning, would throw on the top of it the one they were carrying, and go away.

"In other respects also, the plague was the origin of lawless conduct, for the deeds which men had formerly hidden from view, were now openly perpetrated. Seeing the sudden changes, they resolved to take their enjoyment quickly; regarding their lives and their riches alike as things of a day. As for taking trouble about what was thought honorable, no one was forward to do it, deeming it uncertain whether before he had attained it, he would not be cut off. And as to fear of gods, or law of men—there was none to stop them.

"Such was the calamity which afflicted the Athenians, their men dying within the city, and their lands being wasted without. Their fleet too, which, during the same summer, had proceeded against Potidæa, was unsuccessful; the plague attacking the forces, and utterly overpowering them, so that out of four thousand heavy-armed men, fifteen hundred perished in about forty days; and the soldiers of the Athenians, who had been there before the arrival of the fleet, became infected by the newly arrived troops, though previously they had been in good health.

"On the following winter," adds Thucydides in

another place,* "the plague a second time attacked the Athenians, having, indeed, never entirely left them, though there had been some abatement of it. It lasted, the second time, not less than a year, the former attack having lasted two; so that nothing reduced the power of the Athenians more than this, for not less than four thousand four hundred heavy-armed in the ranks, died of it; and three hundred of the equestrian order, with a number of the multitude that was never ascertained. It was at this time also, that the numerous earthquakes happened at Athens, Eubœa, and Bœotia, particularly at Orchomenos in the last-named country."

One circumstance mentioned in the foregoing passages from Thucydides, is worthy of particular notice, his direct allusion to the spread of this disease by infection, a subject rarely if ever referred to by the medical authorities of antiquity, and upon which I shall again have occasion to speak in connection with Pliny's account of the Mentagra of the Romans.

Before closing our notice of medicine among the early Grecians, having already ventured beyond the strictly professional authorities, it is but proper to give some attention to an author whose writings, more than those of most other men, have been instrumental in exciting to discussion and inquiry in every branch of science. I allude to Aristotle. I need not in this connection refer to his influence as a teacher of philosophy. In this department he

* III. 87.

divided with Plato the admiration of the ancient world, and throughout the middle ages was held in supreme authority among the schoolmen. I refer to him here simply as a contributor to our knowledge of animated nature, to anatomy, and physiology, to the history of the lower animals, and of many of their diseases.

The work of Aristotle, entitled "De Animalibus Historiæ,"* is divided into nine books. In book first he gives the configuration of every organ and part of the human body, accessible to the sight without the aid of dissection; next, acknowledging his utter ignorance of the internal structure of the body, he proceeds to describe that of such lower animals as are thought to bear the greatest resemblance to the human race. In book second he gives the organization of the various classes of animals supplied with blood, meaning such as have red blood. In book third he gives a treatise on what would now be called general anatomy, or the anatomy of the simple tissues and structures: the blood-vessels, and the heart; the nervous, and what we would call the tendinous, and some of the membranous tissues and organs; the firmer fibrous tissues; the bones, the cartilages, the tegumentary envelopes and their modifications in different classes of animals; the substance of the brain and its envelopes; the envelopes of the bones; the muscular tissue; the fat; the blood; the medulla of bones; the

* Aristotelis de Animalibus Historiæ libri x. Lipsiæ, 1811, 4 vols. 8vo., of which the last book is spurious.

milk, and seminal fluid. In book fourth he proceeds to describe with equal care the organization of the different classes of animals without blood, or as we would say, having only white blood. Books fifth and sixth treat of the reproductive functions of the lower animals, from the simplest upwards; book seventh, of the corresponding functions in the human race; and the two remaining books, of the habits, localities, instincts, and propensities of the lower animals; several chapters of the eighth book being devoted to their diseases.

His division of the parts of animals into simple and compound, was adopted by most of the later writers on anatomy, and particularly by Galen. He denies the assumption of Alcmæon, that goats are able to respire through their ears. He describes the two envelopes of the brain; the firmer investing the inner surface of the skull; the more delicate or venous membrane resembling a skin, surrounding the brain itself; which, he says, is without blood, and consists of two parts, the cerebrum and cerebellum. He alludes also to the lateral ventricles. He gives a sufficiently close and accurate description of the respiratory organs, and their connection with the heart. It is not certain, says he, when air has traversed the arteria aspera whether it passes directly to the heart by the lungs, in all animals; though he held such to be the fact in most of them. Of all the organs the heart alone holds blood within itself; for the blood of the lungs is not proper to them, but is contained within the vessels in communication with the heart.

The blood in the middle sinus of the heart is the most attenuated.

He refers to the erroneous opinions of earlier writers, particularly to those of Syennesis of Cyprus, Diogenes Apolloniata, and Polybius, in regard to the origin and distribution of the blood-vessels; and after alluding to the difficulty of the investigation, proceeds to give his own account of them. These vessels, he declares, have not their origin in the head or brain; but are derived directly from the heart. Here the nerves also receive their origin. There are, he adds, two veins within the chest near the spine, the larger of which lies in front of the other, and more towards the right side. The smaller of the two is of a nervous structure when seen in the dead subject, and is called the aorta. Both of these vessels have their origin in the heart; through whatever viscera they pass, their course is continuous and uninterrupted. The heart constitutes, as it were, a part of them; particularly its anterior portion, where it is connected with veins passing both upwards and downwards; the heart itself resting in the midst. He attempts to show a connection between the branches of the vena-magna after passing through the diaphragm to the liver, with other veins passing upward towards the right axilla and arm; adding that the physicians, by drawing blood from the vessels of this arm, are enabled to cure certain diseases of the liver. A similar connection he elsewhere traces between the vessels of the spleen and those of the left arm.

The blood is thicker and darker in the lower,

than in the upper parts of the body. In the veins of all animals it is observed to palpitate. It is the only one of all the humors which is always present so long as life endures. It is supplied from the blandest fluids of the body, and formed within the heart. Deprived of it to a slight degree, the animal faints; to a greater extent, the animal dies. It changes in quality with the periods of life; and if too thin, it leads to diseases. When vitiated it gives rise to hæmorrhoidal flux, to epistaxis, to piles, and to varices. Pus is the result of its putrefaction. The bones, deprived of their fibrous envelope, desiccate; the bladder and other membranous or nervous sacks and tissues, when cut, never heal.

Among quadrupeds the hog is subject to three diseases, all of which he describes, giving the symptoms and mode of treatment, namely, — angina, which extends from the throat to the lungs and other parts of the body; scrofula, affecting the head and contiguous parts; and a disease of the bowels, which is usually fatal. Dogs are also subject to three diseases,—rabies, angina, and podagra; all of which are briefly described. Rabies renders the animal insane, and all others that are bitten by him, excepting man; and is fatal to all that are affected with it. And thus he treats on the diseases of other animals, savage and domestic.

From the foregoing exposition it will be seen that in his acquaintance with anatomy, physiology, and, we may also add, general pathology, Aristotle was far in advance of his epoch, approaching more closely to the medical science of modern times than

to the humoralism of antiquity. With him the blood was the pabulum vitæ, which, when disordered, gave rise to disease throughout the body. He has nothing to say either of the four elements, or of the four primitive humors; and in his study of minute distinctions,—the characteristic trait of his writings on natural history as well as on every other branch of knowledge,—his doctrines were less in conformity with those of Hippocrates, than with those of the school of Cnidos.

The spirit of medical inquiry, as now shown, had already far outgrown the confines of the temples. Yet, as institutions of religion, most of these still maintained their ancient ceremonies. The Asclepion of Cnidos is known to have continued up to the age of Constantine; when, in common with other remaining abodes of pagan worship, by an edict of this emperor, it was leveled to the ground. But the Asclepiadæ of Cos, forgetting the influence of their former mysteries, were preparing the way for a new order of institutions. By slow degrees they lost the suffrages of the multitude. Their sacred groves and fountains, no longer the resort of a confiding people, lay neglected and forsaken, by priests as well as patients; and at length the Roman Prefect, Turullius, in the days of Mark Anthony, while at Cos, regardless of the divinity that once had ruled within the precincts of its hallowed shades, ordered the groves to be destroyed, and the timber to be converted to the uses of the navy.* "*Ac*

* Littré, loco citat. p. 11, from Lactantius. Schulze, p. 130.

*minus credunt, quæ ad salutem suam pertinent, si intelligunt.**

But, notwithstanding the waning of the Asclepiadæ, the teaching of medicine continued to flourish. As early as the time of Aristotle, the profession had not only lost much of its ancient association with the priesthood, but had already become divided into classes,—the apothecaries, whose only business consisted in preparing and dispensing medicines; the physicians, engaged in general practice; and the medical philosophers, who pursued the study as a liberal science only, without devoting their attention to it as an industrial occupation.† From this latter class were probably drawn the first teachers of the Alexandrian school; the opening of which, about three-fourths of a century after the death of Hippocrates, marks the second great epoch in the progress of medical knowledge.

* Pliny, Hist. Nat., lib. xxix. c. viii.

† Aristotle, Politics, book iii. c. xi. and book iii. c. xvi. Aristotle himself, if we may believe Athenæus (Deipnosophists, book viii. c. 50), was in early life, after wasting his patrimony, the keeper of an apothecary shop in Athens.

CHAPTER V.

PERGAMUS AND ALEXANDRIA.

The rapid extension of Grecian arms under Alexander the Great, led to the diffusion of taste and learning among the surrounding nations. Pergamus and the new capital of Egypt, became points of scientific attraction second only to Athens; and with the spread of general knowledge, the study of medicine extended to these cities.

At Pergamus, a library of immense extent had been accumulated by the predecessors of the first Attalus.* The Asclepion of this city was among the earliest off-shoots from that of Epidaurus.† The peristyle of the temple, and the avenues leading to it, were occupied as places of public instruction and scientific intercourse. Here the orators, sophists, and philosophers of the city, held their daily conferences, and sometimes amused themselves in expounding to the sick the vaticinations of the priests. As a school of medicine, the Asclepion of Pergamus enjoyed a long-continued celebrity; but its brightest era was after the first decadence of the Alexandrian school.

The city of Alexandria, from which issued much

* Vitruvius, lib. vii., præfatio, § 4.
† Le Clerc, lib. i. chap. xx., after Pausanias.

of the later learning of antiquity, was projected by the architect, Dinocrates,* commenced during the lifetime of Alexander, and carried nearly to completion by Ptolemy Soter; but many of its public works remained to be finished under his son and successor, Philadelphus.† By means of an artificial causeway, jutting three-fourths of a mile into the sea, the long and narrow island called Pharos, in front of the city, was connected to the main land, and thus converted into a breakwater for the protection of the spacious harbor; in front of which stood most of the public edifices. From the temple of Pan, which rose like a sugar-loaf in the center, the whole of this remarkable capital could be surveyed at a glance. Its two main streets crossing at right angles, were flanked with rows of columns; the one extended lengthwise thirty stadia, or about three miles; and the other transversly about one-fourth of this distance. Fronting the harbor in the middle of the principal avenue, stood the Soma, or mausoleum of the Greek kings, taking its name from the body, meaning the body of Alexander, which was the first therein deposited. Ranging in a line with this along the shore, stood the temple of Neptune, the Emporium or Exchange, the royal docks, the hall of justice, the Serapium, and the Museum of College of Philosophy. Beyond the Heptastadion, as the stone causeway, from its length, was called, were seen other docks; and beyond the walls, the theater, the amphitheater, and the beautiful Gymna-

* Vitruvius, lib. ii., præfat. § 4.

† See Sharpe's Egypt, passim.

sium for athletic exercises, with its stoa or portico of a stadium in length, where the pentennial games were celebrated. On one side of the city could be seen the Hippodrome for chariot races, on the other, the public groves and gardens; still further off, the Necropolis, with its tombs and sepulchral monuments ornamenting the roadside for miles along the shore; and beyond the western wall, the ship-canal connecting the harbor of Eunostus with lake Mareotis, which lay beyond the suburbs; and to which, when the city contained its three hundred thousand souls, these suburbs reached.

The Serapium, or temple of Serapis, on the promontory of Lochias, at the western extremity of the great harbor, was an object as striking to the observer as the lighthouse at the other. Standing within the western gate, this temple, the most magnificent of all the buildings, was approached on one side by a slope for carriages; on the other, by a flight of a hundred steps, widening as they ascended from the street. At the top of these was the portico, with its circular roof and its supporting columns, which gave entrance to the great court-yard; in the middle of which stood the roofless hall of the temple, encircled with columns and porticos inside and out. Enclosed within these porticos were chambers dedicated to the rites of the ancient religion of the country. In one of these stood, glittering with gold and silver, the colossal statue of Serapis, the god whose worship became so popular in the latter ages of the Roman empire; and, as if to impress the multitude with superstitious awe, the light here was so ar-

ranged as to allow the sun's rays, at appointed times, to illuminate the statue's lips. But among the inner porticos at a later period, were deposited portions of that library which rendered Alexandria the great repository of the science and wisdom of the ancients. In the middle of the inner area of the temple stood a lofty column, visible from all the country round, and from ships far off at sea. And when the temple itself, with its fountain, its two obelisks, its gilded roofs, its painted chambers and glittering architectural ornaments, had perished, this column, under the name of Pompey's Pillar, still stood, to vie, in magnitude and durability, with the yet remaining monuments of the earlier Egyptians.

But, among the public buildings of the rising capital, that which has the greatest claim upon our attention, and to which the city ultimately owed its fairest fame, was the Museum. This stood in the quarter of the Bruchium, fronting the harbor. Its chief apartment was a great hall, which served as a lecture-room and place of general concourse. Around the main building, on the outside, was a covered walk or portico; and connected with it, was an Exhedra, in which the philosophers sometimes sat in the open air.

This noble institution was originally designed to serve in part as a school for the training of youth in the higher walks of learning, and in part as a retreat within which men of genius and acquirements, free from the necessity of providing for their daily wants, might have leisure and opportunity, each in his own way, for extending the domain of

science, or for increasing the enjoyments or improving the condition of their fellow-beings. It may have owed its origin, as it owed much of its early celebrity, to the intimate relation existing between the family and descendants of Aristotle, and those of Alexander the Great.* For, Nicomachus, the father of the philosopher, was the physician and friend of Amyntas, the grandfather of the conqueror; and Alexander himself had been the pupil and afterwards the patron of Aristotle. Again, Erasistratus, the grandson of the latter, was among the most prominent of the scientific men brought together at the Museum by Ptolemy Soter, its founder; who was, by repute, the natural son of of Philip, and consequently, brother to Alexander. And finally, we read of another Nicomachus, a name for several generations running through the family of Aristotle, among the associates of the Museum at a later date.

The men of learning in the several faculties of this institution, lived together in a sort of fraternity, eating at a common table, supported in whole or in part at the public expense. Some of them officiated as professors under a fixed salary; some of them as private tutors, deriving at least a portion of their income from their pupils; some of them were engaged in the public works, or in the service of the state; and some, as original investigators

* We are told by Strabo, that Aristotle was the first to collect a library; and that the kings of Egypt, after his example, founded the library of the Museum. See Schulze, p. 359. Athenæus, however, as we shall see, mentions earlier collections.

in the arts, in literature or philosophy, or in works of fancy, in the exact sciences, in natural history, or in medicine.

Under Ptolemy Philadelphus, the Museum had already risen to the highest rank among the Greek schools. Its library already held two hundred thousand rolls of papyrus, equal to about ten thousand of our modern printed volumes. At the head of this library, under Ptolemy Soter, its founder, was Demetrius Phalereus, who had formerly been chief-magistrate of Athens. The system of instruction, as at first arranged, was divided among the four faculties of literature, mathematics, astronomy, and medicine; but other faculties, or special departments, must have been early adjoined to these.

At the head of the mathematical department was Euclid. In that of poetry were Theocritus and Callimachus. The chair of philosophy was assigned to Hegesias of Cyrene, that of astronomy to Timocharis. The department of natural history was under Philostephanus, then engaged in a work on the history of fishes. Manetho, an aboriginal Egyptian, was occupied in preparing an elaborate history of his own country; and Timosthenes, the commander of the fleet, had in charge the subject of geography. In the medical faculty were Cleombrotus of Cos, Herophilus, and Erasistratus. The first of these was in high repute as a practitioner; was sent to the relief of Antiochus when dangerously ill, and after curing that king, received on his return a present of a hundred talents, about fifteen thousand pounds sterling, as a reward from Philadelphus.

Ptolemy Soter was himself an author, and the biographer of Alexander. As a man of enlightened understanding and cultivated taste, he took delight in the society of the Museum. He was in daily intercourse with the philosophers, listening to their discourses in the lecture-room, or entertaining them at his own table. At one of these literary dinners he is said to have asked Euclid for a shorter way to the higher mathematics than that by which the pupils were led in the lecture-room; when Euclid, as if to remind him of the royal roads of Persia which ran by the side of the public highways, but were kept clear and free for the king's use,—gave him the well-known reply, that there is no royal road to geometry.

Among the rhetoricians of the museum was the sophist Diodotus Cronus, with whom Ptolemy was in the habit of jesting, and who among other paradoxes maintained the non-existence of motion,—arguing that motion was neither in the place from which bodies moved, nor in that to which bodies moved, and consequently had no existence. Cronus, however, by a fall, dislocated his shoulder; and when asked by Herophilus, who had been called to assist him, whether the fall had occurred at the place where the shoulder now was, or at that from which it had descended, he was by no means contented with the application of his own argument, and begged the physician to begin at once by adjusting the dislocation.

The seven ablest literary men at the Museum, were called the Pleiades; and they had in charge

the business of adjudging prizes and rewards to the pupils. At one of their public sessions, a chair accidentally vacant among them, was, for the moment, assigned to the grammarian Aristophanes. When the reading of the exercises was ended, and most of those present were agreed upon the one deemed best of all the compositions, Aristophanes dissented from the general judgment, and pointed to the very volume in the library from which this performance had been copied. Ptolemy was struck with this test of the grammarian's acquirements, and soon afterwards promoted him to the post of librarian, then the most honorable office of the Museum. The Ptolmies reserved to themselves the right of appointment to office, and occasionally silenced the professors. Hegesias, in the midst of a discourse against the fear of death, was thus silenced, lest by his eloquence he might excite a passion for suicide among his hearers. But, while watching with solicitude over the business of oral instruction, they took no official notice of books. And Hegesias, no longer able to lecture, consoled himself by recording his opinions, and circulating them among his friends.

At a time when books were expensive and readers few, the influence of private reading could hardly be felt upon the social institutions or political destiny of the nation; and hence it was disregarded. Not so with oral instruction. Among the Greeks this had always been the common mode of enlightening the people, of amusing them, and of molding their opinions. Most of the poetry, and much of

the written history of the nation, were prepared for public recitation. Plato,* aware of the influence of such exercises, would have had a censorship upon the poets, that they might not be permitted to recite their compositions in public before submitting them to the judges and guardians of the law, and obtaining their approbation. The business of lecturing, therefore, was at Alexandria, as in the other cities, of more importance than that of composing for the private reader. The custom of appointing readers for familiarizing the people with Homer and other standard authors, had already been introduced here. And Hegesias, after the loss of his professorial chair, was occupied as the official reader of Herodotus.

Before the settlement of Egypt by the Greeks, papyrus was only in limited use among them. Their adoption of this material in the making of books, was an improvement almost equal to the modern invention of printing. To many of the people books were now known for the first time; and the new substance upon which they were written, replacing the wax tablets, the rolls of bark, the cloth, and other articles formerly employed, continued in general use until it was in turn superseded by the comparatively recent invention of writing paper. The Charta Pergamenta, or parchment, introduced two hundred years later than papyrus, was always too expensive for general use, and was, indeed, an invention of necessity by the scholars of Pergamus, when

* In the Laws, book vii. c. 9.

Ptolemy Euergetes, jealous of the rising reputation of the great library of that city, undertook to arrest its increase by prohibiting the export of papyrus from Egypt. Thus, two of our own words,—parchment from Pergamus, and paper from papyrus,—stand as monuments of the rivalry in the collecting of books, which once existed between Eumenes of Pergamus, and Euergetes of Egypt.

This rivalry continued until the kingdom of Pergamus was bequeathed to the Romans. And not long after this event, when Julius Cæsar set fire to his own fleet in the harbor of Alexandria, the flames accidentally extending to the Museum, which stood in the immediate vicinity of the docks, the building was consumed; and with it perished in the flames that library which had been the growth of ages, and which, at this time, contained not fewer than 700,000 volumes. The Museum was soon afterwards rebuilt. And to supply, as far as possible, the loss of the library, Mark Anthony, when in power, presented to Cleopatra the 200,000 volumes which had hitherto been the greatest boast of Pergamus. This literary treasure was afterwards deposited in the Serapium, and Alexandria once more contained the largest library in the world.

In connection with the libraries of Alexandria and Pergamus, it may be here observed that among the celebrated collections of earlier date, were those of Polycrates, king of Samos; of Pisistratus, the tyrant of Athens; of Euclides, the Athenian; of Nicorrates, the Samian; and of Aristotle and his librarian, Nelius. This latter collection, or at least

the greater part of it, was purchased by Ptolemy Philadelphus, and, with other collections from Rhodes, constituted the nucleus of the first library of Alexandria.*

CHAPTER VI.

THE SCHOOL OF MEDICINE AT ALEXANDRIA.

Among the earliest members of the Museum who devoted their attention to medicine, by far the most conspicuous were Herophilus and Erasistratus.

Herophilus was a native of Chalcedon, and pupil of Praxagoras of Cos.† He was an original investigator; and, after Diocles of Carytus, the first of the Hippocratic school to distinguish himself as an anatomist. To him we owe many of the anatomical terms still in use. He was the first to direct attention to the pulse as an index of the varying conditions of health and disease; properly attributing the pulsation of the arteries to the action of the heart. He was familiar with the course of the lacteal vessels, and with their relation to the mesenteric glands. He experimented on living animals, and even on condemned criminals placed at his disposal in the prisons. He dissected human bodies. His

* Athenæus.—The Deipposophists, book i. chapter iv.

† See Galen, in numerous places; also Celsus, in his preface and elsewhere.

physiological researches excited the indignation of the populace to such an extent as to require the strong arm of arbitrary power for his protection. He traced most diseases to the humors. In practice he resorted to active treatment, after the manner on Hippocrates. He was a voluminous writer in various departments of medicine, treating, among other subjects, on the obstetric art. He was the first to write commentaries on Hippocrates. Professor Marx, who has attempted to collect from Galen and others, all that remains of his productions, ascribes to him works bearing the following titles:—De Causis, Anatomia, Disquisitiones de Pulsu, Curationes, Commentarius in Hippocratis "Prognostica," Commentarius in Hippocratis "Aphorismos," Explicationes Dictionum Exoletarium Hippocratis, De Oculis, Diætetica. To which may be added, on the authority of Soranus, the two following:—Contra Opiniones Vulgares, and De Arte Obstetricia.*

Erasistratus† was a native of the Isle of Chios. He had pursued philosophy under Theophrastus, and medicine under Chrysippus; and before coming to Alexandria, had distinguished himself by discovering the secret ailment of young Antiochus, son of Seleucus, from observing the acceleration of the patient's pulse during the presence of Stratinice, of whom he was enamored. Like his associate,

* De Herophili Celeberrimi Medici Vita, Scriptis atque in Medicina Meritis. By Professor Marx. See British and Foreign Medical Review, vol. xv. p. 110.

† Galen and Celsus, as above.

Erasistratus wrote extensively, and made discoveries in anatomy and physiology. He was familiar with the general distribution of the blood-vessels. He described the anatomical structure of the heart, and like Aristotle, made this organ the source both of the veins and arteries. He held also, in common with Aristotle, that the arteries in health are filled with pneuma, or air, which they receive from the atmosphere in the process of respiration, and that the passage of blood into them from the veins, is the usual cause of disease. He was familiar with the functions of the nerves; and as we are told by Ruffus, he divided them into nerves of motion and nerves of sensation. He was acquainted with the use of the catheter, and was probably the inventor of that instrument. He paid no regard to the Hippocratic doctrine of the humors, or of the four elements. He attributed all fevers to inflammation. The inflammation leading to dropsy, he placed in the liver and spleen. The animal spirits he seated in the brain; the vital, in the heart. He rejected venesection, the use of drastic purgatives, and most other active medicines; he treated diseases almost exclusively by diet and regimen, and was among the first to systematize gymnastics, or what would now be called hygiene, as a department of the healing art. Galen speaks of him as an accomplished anatomist, but charges him with want of skill as a a physician. After commencing his anatomical and physiological researches, he may have been too much involved in these to attend to the minute details of practice. He held medicine to be a conjec-

tural science. He was opposed to the sage of Cos on many points; was said to have been envious of his reputation, and to have mentioned him as rarely as possible in his writings.

During this period the art of medicine was usually divided into three parts; the Dietetic, the Pharmaceutic, and the Chirurgical.* The most illustrious professors of that branch which related to diet, endeavoring to extend their views, called in the assistance of natural philosophy, being persuaded that without this, medicine would be a weak and imperfect science. After these came Serapion, the first of all to maintain that the rational method of studying disease was foreign to the art; for a knowledge of which he trusted wholly to experience. In his steps followed Apollonius and Glaucias, and some time after Heraclides of Tarentium. And thus dietetics had its two parties,—one set of physicians, rationalistic and pursuing theories; the other, following experience alone.

The pharmaceutic branch, though not rejected entirely by Erasistratus and his followers, was more particularly extolled by Herophilus and other rationalists, who resorted to medicine in all diseases, and some of whom wrote extensively upon the materia medica. Among the earliest of these were Zeno, Andreas, and Apollonius surnamed Mus, and several others who treated of medicines incidentally. Among the less conspicuous writers in this department was Pamphilius, in the reign of Ptolemy

* Celsus.

Philometor, the author of a treatise on herbs; of which he speaks in alphabetical order, treating of their agricultural as well as of their medicinal uses. Compiling from Hermes Ægyptiacus, the great medical authority of the early Egyptians, he dwells upon the use of charms, amulets, and incantations for increasing the power of herbs. Nicander, who flourished in the same reign, and spent part of his days at Pergamus, wrote in verse a treatise on poisons and the bites and stings of venomous animals.

Among the surgical writers of this school, were several able professors, particularly Philoxenus, who treated of this branch fully, and with great accuracy, in several volumes. Gorgias also, and Sostratus, the two Herons, the two Apollonii, and Ammonius Alexandrinus, were all improvers in this department. Ammonius was the inventor of an instrument for the crushing of stone in the bladder, where the stone was too large to be extracted in the ordinary way. Apollonius of Cittium, who lived in the time of Ptolemy Auletes the father of Cleopatra, was the author of a work on the diseases of the joints, which, though never printed, is said to be still extant. Philotimus, Nileus, and Heraclides of Tarentum, coinciding with Hippocrates and Dioles, declare that they had perfectly succeeded in reducing luxations at the hip joint, a fact which others had called in question. Andreas, Nymphodorus, and Protarchus, as well as some of those already mentioned, were inventors of machines for reducing dislocations; diagrams of which are still

extant in several of the older systems of surgery, as well as in Galen and Oribasius.

Among the later writers of this school who preceded Galen, and whose works have descended to modern times, were Dioscorides of Anazarba, Ruffus of Ephesus, and probably also Aretæus of Cappadocia. But of these we shall have again occasion to speak, in connection with their contemporaries of the Roman school.

The business of teaching, at Alexandria, was never wholly confined to the professors. In medicine, as in other departments of science, there were independent instructors. Beyond the schools, the student of medicine appears to have had access to the temple of Serapis,* which served in part as an asylum and place of refuge for the sick, and was used as such in the same way as the Asclepions in other parts of Greece. Nor were the devices of the priests here less politic than at the more ancient temples of Æsculapius.

As Vespasian was one day walking through the streets of Alexandria a man with a diseased eye threw himself at his feet, begging to be cured, and declaring he had been told by Serapis that his sight would be restored if the emperor would but spit upon his eyelids. Soon afterwards another who had lost the use of his hand, preferred the same petition; having been told by Serapis that the emperor might heal him by trampling him under his feet.

* Le Clerc (Histoire de la Médicine, liv. i. chap. xx. p. 66–7, on the authority of Tacitus, Ælian and other writers), cites several instances to show that the sick resorted for relief to the temple of Serapis.

Vespasian at first laughed at their importunity; but so far yielded to their wishes as to consult the medical faculty. The physicians, like skillful courtiers, deemed the cure by the means proposed, not impossible. The experiment was attempted before an assembled multitude. It was probably as successful as the royal touch of the kings of England and France in later times; and the flatterers of the Emperor declared that he had healed the maimed, and restored the blind to sight.

But the brightest era of medical science at Alexandria thus far, was the earliest. Under the first associates of the Museum, anatomy and physiology were cultivated with spirit and success; and from the turn given to medical education by these teachers, the character of the school for ages afterwards was definitely determined. The Asclepiadæ of Cos and Cnidos had dwelt upon the phenomena of disease without attempting to demonstrate its structural relations; like the sculptors of their own age, they studied the changing expression of vital action almost wholly from an external point of view. They meddled not with the dead. For, by their own laws, no one was allowed to die within the temple. But the early Alexandrians were subject to no such restrictions; and turning to good account the discoveries of Aristotle in natural history and comparative anatomy, they undertook for the first time to describe the organization of the human frame from actual dissections; and by applying the knowledge thus acquired to the pathological studies of their predecessors, they struck upon the course

which, if followed out by their immediate successors, might have led to many early and brilliant improvements.

But their successors were slow in discovering the road that had been opened to them. Occupied in teaching what had already been surmised or ascertained, few of them were ambitious of adding much to the general stock of knowledge. The dissection of the human body was soon abandoned, and the improvements in pharmacy and additions to the materia medica introduced by them, were as much due to the commercial intercourse of Alexandria with India and southern Asia, as to the scientific enterprise of its physicians. So that medicine, losing the independent and progressive character which it had received at the hands of Hippocrates and his early followers, was again reduced to a mere department of speculative philosophy, involved in futile disputations, and in formulas based on no substantial facts. Hence the several sects into which the profession in course of time became divided.

Of these the Dogmatists, or Rationalists, claimed to be the followers of Hippocrates, and supporters of the academic philosophy. The Empirics originated with Philinus, a pupil of Herophilus, and with Serapion, the successor of Philinus, and were advocates of the sceptical philosophy of Pyrrho. The Methodists were of later date. They are commonly traced to Asclepiades, the founder of the Roman school; but the lessons of his instructor,

Cleophantus of Alexandria,* appear to have furnished the leading principles upon which he and his followers founded this third sect, the philosophy of which was adopted from Epicurus. The Pneumatic sect was an offset from the Dogmatists, and advocated the stoic philosophy. But of these several sects, and of the Episynthetics who attempted to reconcile the whole of them, we shall have again occasion to speak, in connection with the school of Rome. In speaking of the profession of his own time, Galen classes them as Herophilians and Erasistratians, showing that the opinions of the founders of the Alexandrian school had not yet been superseded; and that after an interval of more than five centuries, the impression left upon it by these great men, still continued to give it character and distinction. After falling under the sway of the Romans, for a century or more the school of Alexandria lost much of its previous celebrity, and is little spoken of during the more active period of the school of Rome. Yet even in Galen's day, it was still the center of medical science. And to have studied medicine at Alexandria, was everywhere considered a passport to the confidence and patronage of the public.

* Celsus, iii. 14.

CHAPTER VII.

THE SCHOOLS OF MEDICINE AT SMYRNA, PERGAMUS, AND EPIDAURUS.

But if Alexandria was for many centuries the principal seat of medical science, there was perhaps no period in which it was the only school open to the profession. The followers of Erasistratus, in consequence of temporary disturbance at the Museum, are said to have removed to Smyrna, and at the Asclepion of that city to have established a rival institution. It is even asserted that the school of Smyrna originated with Erasistratus rather than with his disciples, and that he there spent his latter days in teaching.

The school of Pergamus, as before remarked, had been early celebrated. Several of the Alexandrian professors also added luster to this rival institution. The older Heras, who probably flourished during the reign of Attalus II., after whom the kingdom passed into the hands of the Romans, was of this school. He was among the earliest, if not the first, to introduce those compound confections, which, under the name of Theriaca, or antidotes, were afterwards almost in universal use among the ancients. Acopa, or anodyne and analeptic lini-

ments or embrocations, were also among his inventions; some of which he honored with the name of his sovereign.

Attalus Philometor was not only the patron of the profession, but was himself actively occupied in the cultivation and employment of medicinal plants. We are told by Plutarch, that in his gardens he planted the hyoscyamus, hellebore, cicuta, aconite, and other poisonous herbs, and collected them at the proper seasons, with his own hands, for the purpose of experimenting with their expressed juice, their fruit, and their seed, and determining their respective properties.* Attalus was not the only sovereign who, about this epoch, turned occasionally from the cares of state to mingle in the affairs of our profession. Mithridates, king of Pontus, experimented with poisonous plants upon himself, in order to habituate himself to their use, and thus to become unsusceptible to their deleterious effects. His composition, afterwards known as the Mithridaticum, and employed as an antidote, was among the most celebrated nostrums of antiquity. Pompey, after overcoming this prince, ordered diligent search to be made among the archives of his palace for the formula of this famous antidote; and supposed he had discovered it in a confection consisting of rue twenty leaves, salt a few grains, two walnuts, and a couple of dried figs, which was to be taken fasting every morning, and followed with a draught of wine.†

* Le Clerc, part ii. liv. iii. chap. iii. p. 388–90.

† Serenus Sammonicus, v. 1064–71.

Again, without referring to numerous other places of less repute, there is reason to believe that a school of medicine was still associated with that most ancient of all the Asclepions, the temple of Epidaurus; which is said to have stood on the spot upon which Æsculapius was born, a promontory on the coast of Argolis nearly opposite the island of Ægina. The school here may have been dispersed when Sylla ravaged the temple, and appropriated the wealth of its shrine to the maintenance of his army during the Mithridatic war. But so late as the reign of Antoninus Pius, the temple of Epidaurus was still a place of great resort. By the bounty of this ruler its accommodations for the sick were increased, and a new edifice was erected in its vicinity for the accommodation of such patients as were about to die, and by the rules of the temple no longer permitted to remain within the hallowed bounds. This new edifice was also in part appropriated to parturient women, and as a lying-in asylum, sacred to the services of Lucina.*

* Le Clerc, part i, liv. i. chap. xx. p. 63; and Schulze, p. 127, after Pausanias.

CHAPTER VIII.

THE SCHOOLS OF ROME.

SECTION I.—*From their Origin to the Rise of the Eclectics.*

AFTER the Romans had acquired the mastery of the East, many adventurers from the Grecian provinces resorted to the capital in pursuit of occupation as teachers and physicians; at first, with small encouragement. The people of Rome were slow in relinquishing their prejudices against Greek scholars, and were indisposed to forget the humble position of those amongst themselves who were devoted to the healing art.* Cato the Censor, as already intimated, rejecting the sciences not of native growth, trusted for medical assistance, to the untutored skill of servants, to a few simple preparations from domestic plants, and even to charms and incantations. For curing a luxation at the hip, take, says he, a green divining rod four or five feet long, split it in the middle, and let two men hold it at the hip and begin to sing: "*In alio, s. f. motas vœta daries dardaries astataries dissunapiter*," until the injured parts are again united. The luxation being reduced, or the fracture set and properly adjusted in splints, repeat the incantation every day as at first, or the

* Pliny, Hist. Nat., lib. xxix. chap. viii.

following: "*Huat hanat huat ista pista sista dominabo damnawstra;*" or after this manner: "*Huat haut haut ista sis tar sis ardannabon dunnaustra.*"*

We have already alluded to the earliest temple of Æsculapius among the Romans, that upon the Island of the Tiber. Others were afterwards erected in the city; one of these, according to Serenus Sammonicus,† was situated on the Tarpeian rock.

But indications of a more enlightened spirit, are apparent towards the decline of the republic. As early as the time of Cajus Marius, the city was well supplied with hardy and enterprising practitioners. This veteran warrior, who had been six times consul, underwent at the hands of one of these, an operation for the cure of varices; and after the diseased veins had been forcibly wrenched from beneath the skin of one leg, he refused to present the other limb, judging from what he had already experienced, that the proposed relief could hardly compensate for the suffering.‡

Still nearer the close of the republic, the Greek physicians of the city had risen to the confidence and friendship of the Patricians. Cæsar on his voyage to Rhodes, when taken prisoner by the pirates near the island of Pharmaceusa, was accompanied, among other friends, by his physician.§ Cicero declares it to be the duty of all men—a duty particularly incumbent on himself—to support the dignity of the healing art. "*Licet enim omnibus; licet enim*

* M. Porcius Cato de Re Rustica, cap. clx.
† Verse 10th.
‡ Pliny, lib. xi. cap. 104.
§ Suetonius, cap. iv.

mihi, dignitatem medicæ artis tueri." And to Asclepiades, then the most popular physician of the city, he alludes as his personal friend, celebrated as much for his refined eloquence as for his skill in physic.*

In the time of Cicero, the study of philosophy had already become essential to what was considered an accomplished education. This study implied an acquaintance with the Greek language, and was imperceptibly attracting attention to medicine, from which the teachers of philosophy were in the habit of deriving their aptest illustrations, and with which their own doctrines were inseparably united. The statesmen and orators of the nation, becoming in youth familiar with medicine as a department of philosophy, began at length to respect it as an art, and to give to its professors their protection and encouragement. Hence the various laws introduced soon after the organization of the empire, for the benefit of the profession.

Cæsar, after reaching the summit of his power, in order to attract men of science to the capital, and to improve the condition of those already there, decreed that all who practiced physic at Rome, and all the masters of the liberal arts therein residing, should enjoy the privilege of citizenship.† And Augustus, after having been relieved of a dangerous illness by his freed-man, Antonius Musa, loaded this physician with wealth; raised him, by consent of the Senate, to the equestrian rank; erected a bronze statue to his honor near that of Æsculapius;

* De Oratore. † Suetonius, Julius Cæsar, cap. xlii.

and, at his instigation, conferred important privileges on the whole body of the profession then residing in the city.* These privileges were afterwards confirmed and extended by Vespasian, Adrian, Antoninus Pius, Domitian, Alexander Severus, and other later emperors.

Asclepiades, the friend of Cicero already mentioned, was a native of Prussa in Bithynia. To him, more than to any other individual, belongs the credit of having first raised the medical profession in Rome to the confidence and respect of the people.† Educated under Cleophantus at Alexandria, he had practiced medicine, and been employed as a teacher of elocution at Athens, and other parts of Greece, before taking up his abode in Rome. Of an acute and discerning mind, he soon discovered that the principal source of mistrust towards those who who had preceded him, lay in their crude and unfeeling practice. And though at this time perhaps not deeply versed in the principles of his art, he saw the advantage of instituting an entirely different course. Accordingly, rejecting most internal medicines as liable to offend the stomach, he confined himself principally to hygienic measures, and to regulating the diet. To enforce his own views, he turned his eloquence to good account as a public teacher, and originated the first school of medicine in the city. He was the author of a treatise on General Remedies, in which he dwelt mainly on friction of the skin, and beyond this, only on pas-

* Seutonius, Octav. August., cap. lix.

† See Cassius, Celsus, Cœlius Aurelianus, Pliny, Apuleius Madaurensis.

sive exercise, and the use of wine. The novelty and attractive character of his practice rendered him popular, and secured to him lucrative occupation, from which he accumulated a princely fortune. Adopting the atomic philosophy of Epicurus, he attributed all diseases to obstruction of the primary atoms in their passage through the invisible pores; and the restoration of these atoms to their equable relation to the pores, so as to move without embarrassment, he made the principal indication in his treatment. This theory was afterwards more fully elaborated by his successors, in whose hands it was expanded into the distinctive doctrine of the Methodic sect.

The merits of Asclepiades as a reformer, have been differently estimated by different writers, some looking upon him as little more than a successful charlatan, others as a philosophical physician. Apuleius Madaurensis declares him superior to all other physicians, Hippocrates only excepted.* Galen charges him with many absurdities,† and with having but little knowledge of the great fathers of the profession, whom he affected to ridicule; for he had characterized even the writings of Hippocrates as a meditation upon the dead. But Celsus,‡ his more moderate defender, declares he was the first after Heraclides of Tarentum, to effect important improvements in the healing art; and yet admits that he assumed as his own, the use of friction as a

* Florida, cap. xix.

† Vol. ii. p. 165, and elsewhere in numerous places.

‡ Preface to first book.

therapeutic agent, to which he had no claim, inasmuch as it had been in use since the time of Hippocrates; adding, however, that Asclepiades had treated of this more fully and clearly than any former writer. To him we owe the aphoristic phrase, "*Tuto, cito, ut jucunde*," or, as given by Celsus, "*Asclepiades officium esse medici dicit, ut tuto, ut celeriter, ut jucunde curet.*" He was the first to announce the doctrine of the self-limitation of disease, asserting that the principal cure for a fever was the disease itself. He wrote on ulcers, and on acute and chronic diseases. He recommended tracheotomy in threatened suffocation.* His claim to our respect appears to lie in his rejection of the complex, violent, and perturbing remedies in use before his day, and substituting for them such as were simple and grateful to the sick; and in looking upon his art as useful only so far as it served to alleviate actual suffering, or to administer consolation to his patients. Remarkable for independence of judgment, and for a certain elevation of character, he would have the presence of the physician a source of pleasure and encouragement to the patient rather than of foreboding and mistrust, and the physician himself to perform the double function of curing disease as became a skillful and compassionate practitioner, and of cheering and amusing the sick as became a friend. He settled at Rome in the time of Pompey, about 63 years before the birth of Christ; and he is said to have been killed by a fall from a ladder in his extreme old age.

* Cassius, Cælius Aurelianus, and Galen, vol. xiv. p. 274, Kuhn's edition.

Antonius Musa, who was so highly honored by Augustus and the Roman Senate, is spoken of as an able and judicious writer. According to Pliny* he owed his first success to having recommended to Augustus the use of lettuce, which his former attendant, Camilius, had prohibited. He was an advocate for the cold bath as a means of restringing the pores; a practice which at this time appears to have been considered an innovation; and the cure of Augustus, according to Suetonius,† was effected by substituting cold instead of warm applications. A small treatise attributed to him, and dedicated to Marcus Agrippa, the son-in-law of Augustus, is still extant. It is entitled "De Herba Vetonica,"‡ and, in the short space of eight octavo pages, treats of this plant in its application to forty-seven different ailments. This little work is in Latin, although its author, like most of the physicians of the time, was probably a Greek. His brother was highly esteemed by Juba II., king of Numidia, who was himself a man of great learning, and the author of the first Greek history of Rome; and who, on discovering a new medicinal plant near Mount Atlas, named it after this physician; and it is still known by the name first assigned to it, the Euphorbia.§

Cassius, of whom Celsus speaks as recently dead, and as the most ingenious physician of his age, must

* Nat. Hist. lib. xix. cap. xxxviii.

† Suetonius, Octav. August., cap. lxxxiii.

‡ Liber Antonii Musæ de Herba Vetonica, et liber Apuleii de Medicamentibus Herbarum. Per Gabrielem Humelbergium, Basileæ, 8vo. 1536.

§ Pliny, Nat. Hist. lib. xxv. cap. xxxvii.

have been among the early followers of Asclepiades. Though an admirer of the doctrines of this reformer, he was an independent observer, wedded to no exclusive hypothesis. In his practice, he inquired not merely whether the pores are bound or loose, but rather, what is the exciting cause of disease. When called to a patient in a fever and suffering excessive thirst from free indulgence in wine, he ordered him to drink plentifully of cold water; which, by weakening the force of the wine, induced sleep and perspiration, and in this way dissipated the disease. He was the author of a small work entitled "Medical Problems,"* which is still preserved, and is highly deserving of perusal, as illustrating the style of medical logic at this epoch.

This interesting treatise consists of eighty-four distinct problems, with their solutions, all briefly handled, and most of them relating to the history and treatment of disease. In the first of these problems the author asks, why are round ulcers the most difficult to cure; and, in reply, cites the mathematical reason of Herophilus and his followers, as well as that of Asclepiades, who, as we here learn, had taught that ulcers of this shape may be induced to heal by approximating their edges so as to change their shape, or by incising their edges with a scalpel. And in the fortieth problem we learn that Asclepiades was the author of a distinct work on ulcers.

In problem sixth, Cassius inquires, why are per-

* Cassii Medici Questiones. et Problemata, Adriano Junio Homano, interprete. Medicinæ Artis Principes. Venetiis, folio, 1567.

sons with disease of the liver, spleen, or lungs, most disposed to lie on the affected side. His answer is based on anatomical reasoning, and is the same that would be given at the present day. His problems relating to diseases and injuries of the head, evince considerable anatomical and physiological acquirements. In problem fortieth, he asks why parts around the seat of injury on a limb, may remain unaffected, whilst those remote from it are apt to suffer; as the groin, for example, after injury of the foot; the glands of the neck after wounds of the head; or axillary buboes after ulcerations of the hand. In resolving this inquiry, he differs from Asclepiades, and attributes the remote affection to the influence of the nerves; which, says he, are of all the organs the most disposed to participate in the diseases of the members with which they act in concert. In the next problem he asks why injury of the meninges on one side of the head, is followed by paralysis on the opposite side of the body; and, in reply, refers to the anatomy of the nerves; which, says he, derive their origin from the base of the brain, where those of the two sides decussate, so that those from the right side of the base pass into the left sinus of the head, and vice versa. In the forty-third, he asks why papulæ arise from a burn on a living, and not on a dead surface; and his reply is, that in dead bodies the spirits are extinct, whilst in the living, they are moving about and universally disseminated. In the fifty-sixth, he asks, why infants suffer most severely from fever; and tells us that in them there is a superabundance

of native heat. In the sixty-seventh, he inquires, why do fevers modify the condition of the pulse; and in reply, he states that when the equilibrium of the innate spirit is disturbed, and it is separated from the natural spirit, it superabounds and becomes attenuated and divided by the intrinsic heat, so that by its lightness it acquires increased celerity, and thus affects not only the pulse but also the respiration. Here he is foreshadowing the doctrines of the pneumatic sect, though perhaps only in exposition of the views previously advanced by Erasistratus, and even by Hippocrates. In the sixty-eighth problem he inquires why persons laboring under fever, are subject to superficial ulcerations on the skin. This question is remarkable, and might lead to the belief that this acute and inquisitive observer must have been familiar with the eruptive fevers.

It has been questioned whether or not the author of these problems was identical with the Cassius mentioned by Celsus. But there is nothing in the work itself to throw doubt upon this point. Its author must have been worthy of the character which his junior contemporary has bestowed upon him. There is no allusion in the work to any writer later than Asclepiades; besides whom and Herophilus, it mentions only Andreas Carystus, an Alexandrian writer on certain articles of the materia medica.

About this time there were residing and practicing at Rome, several professors of surgery of no small note, among whom were the elder Tryphon, Euelpistus, the son of Phleges, and Meges, who,

says Celsus, was the most learned of them all, as shown by his writings. This latter was the inventor of an instrument for incising the neck of the bladder, in the operation for vesical calculus; which instrument, judging from Celsus' account of it, must have been a double-cutting gorget, similar to what in this country has recently been described as the lithotome of Bushe, or prostatic bisector of Dr. Stevens, cutting transversely. Meges, also, contrary to the general belief, proved the possibility of anterior luxation of the tibia at the knee joint, by a successful case which he himself had treated. In the pathology of abscesses, he was in advance of his times; for while the general belief then was, that all investing coats and sheaths were nervous, he affirmed that a nerve was never generated in a disorder which destroyed the flesh; but that the pus being lodged below for a long time, became surrounded with a simple callosity. Some of the foregoing were also distinguished as oculists.*

As yet, the only two sects recognized in the profession, were the Rationalists and the Empirics;† for, though Asclepiades had introduced important innovations, he was still classed as a Rationalist. Nor was Celsus willing that even the followers of Themison should be acknowledged as a third sect.

The Rationalists were those who declared for a theory in medicine, and held as essential to the proper management of diseases, that the physician should inquire into their occult or constituent causes,

* Celsus, in different places. † Ibid, book i., preface.

and their evident or exciting causes, and that he should be acquainted with the natural actions of the body and its internal organization. By occult or constituent causes, they understood such as are derived from the elements composing the body. By evident causes, they referred to such as are adventitious and apparent, as heat, cold, fasting, a surfeit, fatigue, and the like, which are operative at the incipient, if not also in the latter stages of a distemper. By natural actions they understood the functions of respiration, reception and concoction of food and drink, and the distribution of the nutriment throughout the body. They also investigated the causes, modifications, and indications of the pulse, and what gives rise to sleep and waking. They urged the necessity of modifying the treatment of disease in accordance with the character of the occult cause. But they differed among themselves as to what should be considered the occult cause. Some of them, in common with Empedocles and the early philosophers, held it to consist in redundance or deficiency in one or more of the four primitive elements,—fire, air, earth, and water. Some of them, with Herophilus and other earlier writers, maintained that it lay in a faulty condition of the four humors—phlegm, blood, bile, and atrabile; others, with Hippocrates, attributed it to the qualities of the inspired air; some, with Erasistratus, ascribed it to the escape of blood from the veins (or vessels designed only for blood), into the arteries, which they believed were designed only for air and spirits; the escape of blood in this way, giving rise

to inflammation, and through this, to a fever. Others again, accepting the new doctrine of Asclepiades, placed the occult cause of all diseases in the interruption or arrest of the minute corpuscles in their passage through the invisible pores. They all, too, maintained the importance of a correct knowledge of concoction; but here again, their opinions varied; some of them affirming, with Erasistratus, that in the stomach the food is concocted by attrition; others, with Plistonicus, the disciple of Praxagoras, that it is effected by putrefaction; others, upon the authority of Hippocrates, that it should be ascribed to the effects of heat; whilst the disciples of Asclepiades, looking upon all these opinions as futile speculations, maintained that there is no such function as concoction, but that the food and drink in their crude state are distributed, by means of the pores, throughout the body. They all held to the importance of anatomy and correct knowledge of the internal organization of the body, and maintained that Herophilus and Erasistratus had taken the best means for acquiring such knowledge, in procuring criminals from the prisons by royal consent, and dissecting them alive, so as to contemplate, while yet living, those parts which nature has concealed. And they declared it was by no means cruel, by the torture of a few criminals, to search after remedies for the whole innocent race of mankind in all ages.

The Empirics, on the other hand, relied on personal experience alone. They, indeed, admitted the advantages of occasionally studying the evident

causes; but to search after the occult causes, or the natural actions, they believed to be useless; because nature is incomprehensible, as shown even by the discussions of the philosophers; who, if reasoning were of much avail, ought to be the ablest physicians; whereas they have abundance of words, but very little skill in healing. All theories as to causes, said they, are of little account, seeing that men of opposite theories were about equally successful in the treatment of disease, and that whatever be the character of these causes, the diseases require to be differently treated in different places and different seasons. Again, even where the apparent cause is recognized, as in lippitude, a wound, or ulcer, it does of itself point to the means of cure. And if the evident cause do not suggest these means, much less can the other, which is itself obscure. They held that medicine was not the result of reasoning, but that theory was invented after the remedy had been employed, and for explaining its effects. They asked, too, whether reason prescribes the same things as experience, or different; for, if the same, it is needless; if different, mischievous. On the appearance of any new disease, instead of inquiring into its occult or apparent causes, they sought for its analogy to diseases already known, and met it by remedies analogous to such as were used in these, until the true mode of treatment could be discovered. They did not affirm that judgment is unnecessary, but that conjecture is of no use, and that it is of little consequence how the disease originates, so long as we are able to cure it. They admit

that in all discussions of this sort, much may be said on both sides; yet, that diseases are not to be cured by eloquence, but by remedies. They regarded as useless the study of the natural actions and internal organization of the body; and they denounced the dissection of living men with as much vehemence as would the moralist of modern times.

Thus stood the discussion, which had been handled with great warmth for many ages, when Themison of Laodicea, the disciple and successor of Asclepiades, entered the lists in his old age, as the leader of a third party.* Though he was influential as a teacher and reformer, his writings are not often quoted; and as they have perished in the wreck of ages, his opinions are known to us only through his reputed followers, or the critics and historians who have noticed them. According to Cælius Aurelianus, he was the first to write systematically on the management of chronic diseases, upon which subject he published a work in three books. He wrote also on acute diseases. As a practitioner he was familiar with the use of opium, hyoscyamus, and other narcotics; and his name is associated with a confection of poppies, which he employed in the diseases of the respiratory organs. But he is more especially worthy of notice as the founder of the Methodic Sect.

Adopting the theory of Asclepiades as to the arrest of the ultimate molecules in the invisible pores, he

* Celsus, book i. preface; Galen, and Cælius Aurelianus, at several places.

attributed all diseases to excessive tension or relaxation; and this doctrine of Laxum and Strictum became the essential principle of the new party; who, with the Empirics, abandoned the study of exciting causes, as having no relation whatever to the method of cure; and maintained that the correct method of treating disease may be ascertained by simply observing a few of its general symptoms. Of distempers they made three kinds, the bound, the loose, and the mixture of these two, according as the excretions are too scanty, too profuse, or some particular excretions are deficient whilst the others are in excess. These several forms they subdivided into the acute and chronic, and, also, according as they were increasing, stationary, or receding. Their rule of treatment was, that the body if bound, should be opened; if relaxed, it should be astringed; and if the distemper were complex, the most urgent ailment should be the first opposed; varying the agent with the duration or stage of the disease. The observance of these rules constituted, according to their notion, the whole art of medicine; and from their own established way of proceeding by method, they claimed for themselves the name of Methodists; for they differed from the Rationalists, in not allowing medicine to consist in theorizing about occult or other causes,—and from the Empirics, in holding personal experience to be but a small part of the art. The doctrine of the Methodists had for a time great sway. Celsus, while criticising them with his accustomed acuteness,

gives them but little countenance, and denies their claim to the title of a distinct sect.

Aulus Cornelius Celsus, justly styled the Latin Hippocrates, was the junior contemporary of Themison, and so far as we are aware, the earliest medical writer of unequivocal Roman birth.* Of his own personal history little is known. Quintilian attributes to him a treatise upon Rhetoric, and gives honorable testimony to the extent of his learning. His contemporary Columella,† who often quotes from his work on agriculture, with great deference to his authority, equals him to the ablest writers on husbandry, and speaks of him as one not only skilled in agriculture, but who had familiarized himself with the whole compass of natural knowledge. His treatise on Medicine,‡ in eight books, is all that now remains of his writings. According to the best critics, this work must have been written towards the close of the reign of Augustus, or, at latest, at the beginning of the reign of Tiberius. Celsus, more than any other of the ancient Latin physicians, is celebrated for the purity and elegance of his style, and for a concise and judicious manner of handling his subject. The summary history of medical doctrines, of the materia medica, and of surgery, introduced at the

* Columella, Pliny, and Quintilian, all speak of him as a Roman.

† De Re Rustica, lib. i. cap. 1, *et seq.*

‡ A. Corn. Celsi Medicinæ lib. octo. ex recensione Leonardi Targæ, &c. Edinburg, 8vo. 1831. See also the translation of the same, by James Greive, M. D. 3d edition. London, 1837.

commencement of his first, fifth, and seventh books, shows how carefully he had studied the great masters of the art, and how well he was prepared to furnish a thorough and reliable digest of their opinions; not indeed as a compiler of minute details, but as one able to grasp the philosophy of medicine, and at the same time not to overlook any facts essential to the guidance of the practitioner. While citing many authors, he holds Hippocrates, and next to him Asclepiades, in chief regard. In judgment he is too independent to acquiesce in all that had been advanced by either of these. He rejects the Hippocratic doctrine of critical days, and he differs from Asclepiades in many points; but whilst dissenting from those whose authority he usually respects, he gives sufficient reason for his own opinions. The delicacy of his censure in condemning others, and the caution with which he avoids all allusion to himself, have led some to the belief that he was not a practitioner of medicine. But, as his translator Dr. Grieve has well remarked, his forms of expression are those of a practitioner, and such as would come very improperly from a mere compiler. To the careful student of his works, it must appear incredible that a production so replete with practical suggestions, and so remarkable for medical discernment, could have been the work of any other than an accomplished and skillful physician. He may not indeed, like the Greeks of Rome, have practiced for a livelihood. "The man to be trusted," he tells us, "is he who knows his profession, and is not much absent from his patient.

But they who practice only from views of gain * * readily fall in with such rules as do not require close attention. * * It is easy for such as seldom see the patient to count the days and paroxyms; but for him who would form a true judgment of what is alone fit to be done, it will be necessary to sit by his patient."* The inference to be derived from this passage, as well as from his literary habits and polished style, is that he may have been in easy circumstances, above the necessity of practicing for the sake of gain, and that he followed his profession as a liberal and useful occupation, as law had originally been followed by the patricians and other men of influence at Rome; who, even in the days of Cicero, would have considered it disgraceful to accept a fee from the client in whose behalf they were officiating as advocates at the forum.

The early Alexandrian division of diseases, into such as are remedial by diet and regimen alone, such as require the use of medicines, and such as call for the interference of surgery, is that which Celsus adopts as the basis of his arrangement for treating on every branch of medicine then understood. In his first book, he dwells with sufficient fullness on the general rules of health; in the second, on general pathology and therapeutics; in the third and fourth, he speaks of such individual diseases as affect the whole body, and such as occur on particular parts, and are remediable by diet; in the fifth and sixth, of such constitutional and local diseases

* Lib. iii. cap. 4.

as require the assistance of medicine; most of the sixth book is taken up with diseases properly surgical, though not requiring operations; and in the two remaining books, he gives a systematic exposition of surgery; the last book being occupied exclusively with diseases and injuries of the bones and joints. We have already had occasion to condense from the preface to his first book, his exposition of the opinions and arguments of the Rationalists and Empirics. The following are his own views on the merits of the whole discussion:

"Since these points have often been and still continue to be disputed with great warmth, by physicians, in large volumes, it is proper to add some reflections that may seem to come the nearest to the truth, and which neither slavishly follow either of these opinions, nor are too remote from both, but, as it were, intermediate between these opposite extremes; which those who inquire after truth without partiality, may find to be the surest method for directing the judgment in most warm controversies, as well as in this now before us. For, with regard to the causes of health or disease, in what manner the air or food is either conveyed or distributed, the philosophers themselves do not attain to an absolute certainty; they only make probable conjectures. Now, when there is no certain knowledge of a thing, a mere opinion about it cannot discover a sure remedy. And it must be owned that nothing is of greater use, even to the rational method of curing, than experience. Although, then, many things are taken into the study of arts,

which do not, properly speaking, belong to the arts themselves, yet they may greatly improve them by quickening the genius of the artist; wherefore the contemplation of nature, though it cannot make a man a physician, yet may render him fitter for the practice of medicine. * * And medicine itself requires the help of reason, if not always amongst the occult causes or the natural actions, yet often, for it is a conjectural art; and not only conjecture in many cases, but even experience is found not consistent with its rules. * * A new distemper sometimes, though very seldom, appears; that such a case never happens, is manifestly false. * * Nor is similitude always serviceable in this kind of practice; and where it is, this properly belongs to the rational part." * * To the physician, he adds, "it makes considerable difference whether the distemper is occasioned by fatigue, or thirst, or cold, or heat, or watching, or hunger; or whether it arises from too much food or wine, or excess of venery. And he ought not to be ignorant of the constitution of the patient,—whether his body be too moist or too dry; whether his nerves be strong or weak; whether he be frequently or seldom ailing; and whether his illnesses are severe or slight, of long continuance or short; what kind of life he has led, laborious or sedentary, luxurious or frugal; for from these and such-like circumstances, he must often draw a new method of cure."

In reference to the Methodists, his censure is less guarded. "If they assert their maxims," says he, "to hold universally, they are still more rationalists

than those who pass under that name; but if, which is nearer the truth, the art of medicine hardly admits of any universal precepts, then they are in the same class with those who depend upon experience alone. * * Nor is any improvement made by them upon the profession of the empirics; but, on the contrary, something is taken from it,—the empirics attending with great circumspection, to many circumstances, whereas these regard only the easiest, and no more than the common things." * * * "I am apt to think," says he, "that he who is not acquainted with the peculiarities, ought only to consider the general; and that he who can find out the particular, ought not to neglect but to take them in too, for the direction of his practice. And therefore where knowledge is equal, yet a friend is a more useful physician than a stranger. To return to my point, then, my opinion is, that medicine ought to be rational; but to draw its methods from the evident causes, all the obscure being removed, not from the attention of the artist, but from the practice of the art. Again, to dissect the bodies of living men is both cruel and superfluous. But the dissection of dead subjects is necessary for learners, for they ought to know the position and order of the parts, which dead bodies will show better than a living and wounded man. But as for the other things which can only be observed in living bodies, practice itself will discover them in the cure of the wounded, somewhat more slowly, but with more tenderness."

As a comment on these remarks, we might refer

to his brief anatomical description of the internal organs, at the commencement of the fourth book, portions of which could have been derived only from the actual dissection of the human subject.

It has been remarked by a recent critic, that Celsus paid little regard to the pulse as an index of the condition of the system. But his remarks on the variability of the pulse are perfectly just, and are intended not to show his neglect of it, but rather to put the physician upon his guard against hasty judgments. "It is the business of the skillful physician," says he, "not to take hold of the patient's arm with his hand as soon as he comes in, but first to sit down with a cheerful countenance, and ask him how he does; and if he has any apprehension, to encourage him with plausible discourse, then to apply the hand to the wrist."

In common with the elder Greeks, he recommends caution in undertaking the management of dangerous and incurable ailments. "A physician," says he, "should, above all things, know what are incurable, what difficult to cure, and what more easy; for it is the part of a prudent man first, not to undertake one whose case is desperate, lest he appear to have killed him whom destiny has destroyed. Next, in a case of great danger, but not quite desperate, to make known to the friends of the patient that it is a matter of difficulty, so that if the malady should prevail against the art, he may neither seem to have been ignorant himself, nor to have deceived them. But," adds he, "as this is the proper conduct for a prudent person, so, on the contrary, it

is the part of a quack to exaggerate a small matter, that he may appear to have performed the greater cure." When the case is easy, he recommends diligence and circumspection on the part of the physician, "that what is in itself small, may not, by his negligence, become more considerable."

Before leaving this able author, we may notice his opinion of what a surgeon should be, and of what surgery should embrace. "Surgery, the third part of medicine," says he, "does not discard medicines and proper regimen; but yet the principal part is accomplished by the hand, and the effect of this is the most evident of all the parts of medicine. For, as fortune contributes a good deal to the cure of distempers, and the same things are often salutary, often fruitless; it may be doubted whether the recovery be owing to physic or the constitution. * * But in surgery, it is manifest that the success, though it may be somewhat promoted by other means, is chiefly to be ascribed to this." "A surgeon," he continues, "ought to be young, or at most, but middle-aged; to have a strong and steady hand, never subject to tremble, and to be no less dexterous with his left than his right hand; to have a quick and clear sight; to be bold, and so far void of pity that he may have only in view the cure of him whom he has taken in hand, and not in compassion to his cries either make more haste than the case requires, or cut less than is necessary; but do all as if he were not moved by the shrieks of the patient." And then, as to the province of surgery, "it may be asked what peculiarly belongs to

this branch, because surgeons assume to themselves the curing of many wounds and ulcers which I have treated of elsewhere, I can very well suppose the same person capable of performing all these; and since they are divided, I esteem him most whose skill is most extensive. For my part, I have left to this branch those cases in which the physician makes a wound where he does not find one; and those wounds and ulcers, in which I believe manual operation to be more useful than medicine; lastly, whatever relates to the bones."

It would here be out of place to enter further into a notice of the individual diseases of which he treats in the several divisions of his work. I may, however, mention, as particularly worthy of perusal, his chapters on diet and regimen, on blood-letting, on fevers, on poison-wounds, on the extraction of weapons from the body, on the diseases of the eye; his description of ranula and his mode of treating it; the chapter on diseases of the testicles and parts contiguous, including hernia, and the operations for these; and above all, his chapter on the operations for suppression of urine, and for lithotomy. In this we find all the necessary details for catheterism as still employed; and the Roman method of operating for stone by the transverse semilunar incision in the perineum, with the horns of the incision pointing towards the hips, as lately revived by Dupuytren and other modern surgeons.

In the management of wounds he advocates the use of simple and familiar, in preference to rare and expensive remedies, or the heterogeneous composi-

tions so much in vogue among the Romans. He was aware that certain poisons, though deleterious when received into wounds, are innocuous when taken into the mouth. In the treatment of wounds thus poisoned, he recommends suction for the extraction of the poison. He applies the ligature to divided or lacerated blood-vessels; he employs this same agent for the cure of varices, and for checking the loss of blood from hæmorrhoids. He enters somewhat fully into the pathology of injuries of the head; and, when indicated, employs the trephine and other proper means for the cure of such accidents. He enters more minutely into the consideration of injuries at the hip, than many of the early surgical writers of modern times; but in common with most of his predecessors, he fails to distinguish between fractures of the neck of the femur and dislocations at the hip joint.

Among the Latin writers practicing at Rome at this period, were Apuleius Celsus, and his pupil Scribonius Largus, the first probably somewhat the senior and the other the junior of Cornelius Celsus.

Apuleius was a native of Centuripa, in Sicily. He was long in high and deserved repute at Rome, where he was engaged in teaching, as well as practicing. Among his pupils was Vectius Valens, celebrated afterwards for his intrigue with Messalina, the wife of Claudius.* The works of Apuleius have mostly perished, though there is still extant a

* Pliny, Hist. Nat., lib. xxix. cap. v.

treatise on the virtues of herbs,* which has sometimes been ascribed to Apuleius Madaurensis, the author of the Golden Ass; but which those who have examined it with greatest care, attribute to Apuleius Celsus. The author of this treatise, De Medicaminibus Herbarum, states in his preface, that it was prepared for the benefit of the public, and to relieve the common reader from the verbose stupidity of the profession, the greater part of whom he characterizes as ignorant pretenders, more intent on the acquisition of wealth than on the cure of the sick. Much of the work is occupied with antidotes, and specifics against the bites and stings of venomous animals. It is proper to remark that some recent and able critics have questioned the authenticity of this work, and ascribed it to some unknown writer of the middle ages.

Scribonius Largus, who flourished during the reign of Claudius, and accompanied this emperor in his expedition into Britain, was an incorrect writer of the Latin tongue, but in a professional point of view, an author of considerable merit. Though an admirer of Asclepiades, he appears to have written in the spirit of empiricism. His treatise, De Compositione Medicamentorum,† is devoted rather to the composition and uses of medicines, than to the consideration of the diseases to which these are applied. Many of his compound confections are quoted by later writers. He abounds in remedies

* Already mentioned in connection with the work of Antonius Musa, published at Bâle, 1536.

† See the "Medicinæ Artis Principes," fol., Venitiis, 1567.

for the cure of particular ailments; and, as usual, his antidotes, theriacæ, plasters, and embrocations, are highly illustrative of the polypharmacy of his times. He gives the formula for the celebrated mithridaticum, an antidote against all kinds of poisons, said to have been invented or employed by Mithridates, king of Pontus; but which, as here given, differs materially as well from the formula said to have been discovered by Pompey among the archives of Mithridates, as from that which we find in Galen.* How far this work of Scribonius Largus was original, and how far derived from other writers, we are not able to determine. By some critics it is said to have been little else than a translation from Nicander; but careful perusal will show that portions of it, at least, could not have been from that early source. The writer himself expressly informs us that the greater part of his compositions he had himself prepared and used, and that the rest were mostly obtained from his friends. Among these friends must have been Apuleius, his preceptor, whose writings he may have appropriated with considerable freedom. For Marcellus Empiricus, who makes no allusion to this work, and acknowledges that he himself has copied from Apuleius, gives numerous passages which are also found almost word for word in the writings of Scribonius. Again, this author has been charged with recom-

* The Mithridaticum, according to Pliny, was a composition for the luxurious who could afford to pay for it, consisting of fifty-four different ingredients derived from abroad, and used where simple domestic remedies would have answered as well. See Hist. Nat. xxix. 8.

mending his medicaments indiscriminately; but he himself declares that, in the diseases for which they are intended, they will sometimes prove beneficial and sometimes fail, according to the condition or age of the patient, the season of the year, peculiarities of time and place, or other varying circumstances; and that even in bodies to all appearance similarly situated, the same agent will not always produce the same effects.

About this same epoch also flourished Athenæus, a native of Attaleia, in Asia Minor, who, while practicing and teaching at Rome, took strong ground against the Methodists, and became the founder of the Pneumatic sect.* He is generally supposed to have written subsequent to the time of Cornelius Celsus, inasmuch as the latter makes no direct allusion to him. But the doctrines of this fourth sect were essentially the same as those promulgated by Erasistratus, in reference to the Pneuma, or spirit, as a fifth element; the disturbance of which in the living body was assumed to be the essential cause of all diseases. Now, to this doctrine Celsus does allude, and even devotes a section in strenuous opposition to it, referring to Erasistratus as its author. The doctrine of a fifth element, however, was even more ancient than this writer. The term Pneuma was employed by Aristotle; and the five elements are distinctly enumerated in the "Epinomis," a dialogue which on good authority is ascribed to Plato,

* See Galen, Kuhn's edition, vol. vii. 609, viii. 749, xix. 347, 356. He should not be confounded with Athenæus of Naucratis, who flourished in the third century.

or at latest, to his pupil, Philip of Opuntium.* As there are five bodies, observes the author of this dialogue, it is requisite to say that fire is the first, water the second, air the third, earth the fourth, and æther the fifth; and that in the domains of each of these is produced many an animal, and of every kind.†

Athenæus, then, owed his reputation more to his attack upon the Methodists than to the modifications of Rationalism which he adopted. His own peculiar opinions were of only temporary notoriety. Agathinus of Lacedæmonia, who had been among his followers, undertook to reconcile the doctrines of his master with those of the other sects, and thus became the founder of the Episynthetics, or Eclectics.‡

SECTION II.—*The later Methodists of the Roman School.*

Among the writers of the Roman school, it is not always easy to distinguish those who were of Grecian birth, from those of Roman origin. As early as the reign of Augustus, the Greek became the accepted language of the court;§ and it had always been the language of the schools, and of science. Among the early Roman Medical writers forsak-

* Plato (Kuhn's edition), vol. vi. p. 195. † Ibid. vol. vi. p. 17.
‡ Galen, vol. xix. 353. § Suetonius, in Life of Augustus.

ing their native language, were Sextus Niger and Julius Bassus, who are referred to by Pliny and others, but of whose writings we have no remains. They were both of the Methodic sect, as were also most of the practitioners at Rome between the reign of Augustus and that of Marcus Aurelius; of whom, besides those already mentioned, were the Greek physicians Andromachus, Thessalus, Philomenus, Archigenes, Heliodorus, Antyllus, and Soranus.

Andromachus the elder, was of Crete, and a pupil of Diogenes of Babylon.* He was physician to the emperor Nero, and the first to enjoy the official distinction of Archiater, a title to which we shall have occasion to return. He was celebrated for his theriaca, into which he introduced the flesh of vipers, to which, at that time, were ascribed wonderful effects as an antidote.

Thessalus was a native of Tralles, in Lydia, and is spoken of by Pliny† and Galen, as a charlatan. He was a man of low origin, vulgar manners, and supercilious spirit. Though of the Methodic sect, he had too little regard for the opinions of others to be the strict follower of any theorist. With little knowledge of the literature of medicine, he held himself superior to all his predecessors, and boasted of being able to impart the whole art to his pupils in the space of six months. He flourished at Rome during the reign of Nero, and by his practice accumulated immense wealth. He was the author of

* Galen, in numerous passages. † Hist. Nat. lib. xxix. cap. v.

several works, all of which have perished. Cælius Aurelianus attributes to him a treatise, in several books, on Dietetics; and another, also in several books, entitled "Comparatio."

Philomenus, another writer of the Methodic sect, flourished about this same epoch, and is occasionally quoted by Oribasius, Aëtius, and Alexander Trallianus. He pointed out the affinity between dysentery and the prevailing fever of the season. He was the first to recommend assafœtida and frictions with tepid oil, for the treatment of tetanus. He wrote on the diseases of women, and on the removal of the fœtus by artificial means.*

Archigenes of Apamea, in Syria, was in great repute at Rome, as a physician and surgeon. He flourished in the reign of Trajan. His works were numerous, and are often quoted with commendation, by Galen and others. He wrote ten books on fevers, three on local affections, also on the use of castor, and of hellebore in mentagra and other cutaneous affections; and on surgical diseases, some fragments of which are still extant in the collections of Nicetas.† His description of the operation of amputating, is worthy of notice. He begins by retracting the integuments of the limb; he next applies a circular compress or tourniquet for controlling the loss of blood; he even recommends, when necessary, a preliminary operation for securing the blood-vessels and stitching them, before proceeding to the

* See Sprengel, tome ii. p. 31.

† Græcorum Chirurgici libri, e collectione Nicetæ, conversi et editi ab Antonio Cocchio. Florentiæ, fol. 1754, p. 118 and 154.

amputation. This he performs invariably at the joint, by a circular incision. After the removal of the limb, whatever hæmorrhage occurs he arrests by the actual cautery; taking due care not to apply the heated iron to the divided extremities of nerves.

Heliodorus is also more particularly noted as a surgeon. Fragments of his writings on wounds of the head, on fractures of the skull, and other injuries, may also be found in Oribasius* and the collections of Nicetas.† His remarks on injuries of the skull are judicious, and indicative of a careful observer; and his treatment, such as might be recommended at the present day. His dressings are light, his local applications simple, usually moist compresses, roseated oil, simple cerate, and tepid water. For controlling inflammation he resorts to low diet, and occasionally to venesection. He speaks of amputating in the continuity of the long bones, but looks upon operations above the knee and elbow as extremely dangerous, from loss of blood. To obviate this danger as far as possible at other points, he makes his incision first through those parts of the limb in which the bones are most superficial; he next saws through the bones; and he reserves his incision through the fleshy part of the limb, where the vessels are most numerous, to the last.

Antyllus, another surgeon, though not mentioned

* Collect. lib. viii. chap. 3, 4, and elsewhere.

† Page 90 to 106. pp. 124, 156.

by Galen, is by some writers presumed to have preceded him, whilst by others he is placed as late as the reign of Valerian. He is frequently mentioned by the later Greeks. In the collections of Nicetas* is a fragment of his on elastic or watery tumors of the head, superficial and deep-seated; including among the last, congenital or chronic hydrocephalus. The superficial varieties he encounters with fair hope of success, but with those more deeply seated he is indisposed to interfere. He treated humid asthma with suffumigations, placing the patient in such a position as readily to inhale the fumes from particles of aristolochia or clematis previously sprinkled over burning coals in a chaffing-dish or brasier.† He operated on cataract by extraction; with Asclepiades, he recommends tracheotomy in threatened suffocation; and he treated hydrocele by incision.‡

Soranus of Ephesus, the second of that name, was educated in part at least at Alexandria, and practiced with great eclat at Rome under the reigns of Trajan and Adrian. He was celebrated both as a teacher and practitioner; and is admitted to have been the ablest exponent of the Methodic doctrines, which he carried to their highest degree of popularity. He was the first to mention the Dracunculus or Guinea worm (*vena medinensis.*) Among the fragments of his writings still preserved, we have a treatise on the female organs of generation, and another on fractures, which is contained in the col-

* Page 121.

† Oribasius, collect. lib. viii cap. 12.

‡ Sprengel, tome ii. p. 94, from Rhazes and Paulus.

lections of Nicetas, and is mostly made up of definitions. This second Soranus is not to be confounded with still another of the same name, also of Ephesus, a writer of later date, and the reputed author of a memoir on the life of Hippocrates. The works of the second Soranus, though mostly lost, served as the model for those of Cœlius Aurelianus, who is supposed to have embodied the greater part of them in a translation. To him, therefore, we must next direct our attention.*

Cœlius Aurelianus, sometimes called Lucius Cœlius Arianus, was a native of Sicca in Numidia. He appears to have been a voluminous writer. Besides his work on Acute and Chronic Diseases, which is preserved entire,† he was the author of Greek Epistles addressed to Prætextatus; of a work on Fevers, and of another on Diseases of Females; of distinct treatises on the Causes of Disease, on Surgery, on the Rules of Health, on Adjuvants or the General Remedies of the Methodic sect, and on Medicaments; besides several books of Medical Interrogations and Responses; and a book of Problems;—all of which have perished. His work on Acute and Chronic Diseases is written in impure Latin; and much of it, as the author admits, has been borrowed from Soranus. But it can hardly be considered a translation, since much of it was evidently the result of the author's own observation and experience. Of the eight books consti-

* Cœlius Aurelianus, and Galen in several places.

† Cœlii Aureliani Ciccensis de Morbis Acutis et Chronicis libri viii. 4to. Amstelædami, 1722.

tuting this work, three are devoted to the history and treatment of acute, and five to the history and treatment of chronic diseases. The several maladies are arranged in the usual order from head to foot, considered in their relation to concomitant constitutional disturbances, and spoken of as accompanied or not accompanied with fever. This valuable summary of theory and practice, can scarcely be considered as advocating only the doctrines of the Methodic sect. Though its author is a favorer of these doctrines, he speaks as an independent observer, criticises the leading writers of his own party, and, in disposing of his materials, gives first his own proper opinions on the history or pathology of the disease in question, and afterwards those of the several leading writers of the other sects; drawing, however, almost exclusively from the Greeks, and furnishing a systematic exposition of the theory and practice of physic, both of his own and previous times. But in referring to his predecessors he is much more solicitous to give their treatment than their pathological opinions; which, however, he does not entirely overlook. Cælius Aurelianus, quoting from Soranus, is the first writer in whom I remember to have met with a practical distinction between what he calls the signs and the symptoms of disease, a distinction still worthy of remembrance: the signs being always present during the existence of the disease; the symptoms being mere accidents, that may or may not be observable, without necessarily implying any essential modification in the disease itself. His chapters on diseases of the head are ably written, and evince much prac-

tical acquaintance with the subject. In his chapter on Cynanche he says, some forms of Cynanche are without visible manifestations; others are visible and manifest, either within the fauces, or externally, or both externally and internally, and in one or both sides. The transition from this description to that of the monkish writers of the middle of the thirteenth century, Roger, Roland, and the author of the Four Masters, is curious and amusing. Thus, says Roland, Squinantia is an aposthem of the throat, of which there are three sorts; and hence the verse,—

"Qui (nancia) latet, squi (nancia) patet, si (nancia) manet intus et extra."

While on diseases of the throat, Cælius Aurelianus takes occasion to criticise Hippocrates, particularly in reference to the inhalation of vapors medicated with hyssop, sulphur, or bitumen, by means of a tube introduced within the fauces, for the relief of threatened suffocation; a practice against which he speaks in the strongest terms; judging it impossible to insert a tube into the fauces already so much obstructed as not to admit even air,—or to inject thick smoke where thin air is unable to penetrate.*

As Soranus and Cælius Aurelianus are considered the ablest exponents of the Methodic doctrines; and as we learn from them what would be sought in vain elsewhere concerning Asclepiades, Themison, Thessalus, and others of this sect, it may be proper here to give a summary of their practice at the period of its greatest eminence.

They confined themselves as much as possible to

*. See his works, p. 191.

general remedies; to the exclusion of specifics, or particular remedies for particular ailments. In the management of disease their first care was that the chamber of the patient, the air surrounding him, and the arrangements of his bedding, should be well selected. Food and drink were allowed in moderation, provided the circumstances of the case did not clearly prohibit these. Under this course the tendencies of the disease were for some days sedulously watched. A generous or supporting diet was rarely employed within the first three days, during which time they watched for the concoction of such crudities as might have existed in the primæ viæ; and partly by abstinence, partly by friction, fomentation, and inunction, they looked for the removal of these. During the second period of three days, unless the urgency of the case called for greater expedition, they employed venesection when indicated; or cupping, if necessary, over every part of the body; sometimes with scarification, sometimes dry, and sometimes in connection with leeches. Among their general remedies for resolving constriction were, warm and sunny air, a soft couch, gargarisms of tepid water or of fresh and fragrant oil, fasting, watching, inunction, emollient cataplasms, fomentations and baths, humid cupping, venesection, gestation, and passive motion generally, emollient clysters, and emetics. For astringing the body, already too much relaxed, they employed cold air, a shaded position, a hard couch, gargarism of vinegar and water, or vinegar and posca (dilute aromatic wine) applied with a sponge, cold lotions

containing the juice of plantain, of portulaca, or sempervirens; a diet of barley meal, of lentils, or of quinces, or toasted bread moistened with vinegar, sound sleep, repose, dry-cupping. They rarely resorted to purgatives except in dropsies; they were equally opposed to diuretics and sudorifics, to irritating clysters, to opiates, and to the abstraction of blood from the sublingual vessels, as others had recommended, *ad deliquium animi*. Nor would they resort to measures likely to jeopardize the safety of their patient. In the treatment of tumors, a term applied by them to all inflammatory swellings, while the disease was on the increase, they employed moderate astringents; when stationary, relaxing and assuaging remedies; when on the decline, emollients. In diseases attended with distinct remissions or intermissions, particularly with regularly recurring paroxysms, they employed *recuperatives*, called also *metasyncratica*, by which they meant fortifying and analeptic agents; among which were included violent exercises, hoping thereby to expel from the body while relaxed, the worn-out or diseased flesh, and to replace this by new and healthy tissues. For checking profuse sweating, they sprinkled the surface of the body with powdered chalk or alum, and with various other astringents.

The obstetric art among the ancients was usually in the hands of illiterate females, who acquired their information by experience. But for the instruction of the better sort of them, as well as of the matrons who had occasion for their services, several works

appear to have been in use, among which was a treatise by Aspasia, now lost, but of which mention is made by Aëtius; and the essay, in one hundred and fifty-two short chapters, by Moschion, also mentioned by the same author; a work which is still extant. Moschion appears to have flourished at Rome soon after Soranus or Cœlius Aurelianus. In the preface to his work on the Diseases of Women,* he tells us it was intended for the benefit of mothers, and of those females who were devoted to the obstetric art, and familiar only with the Latin tongue. It must, therefore, have been originally written in Latin; but we have only now remaining the Greek version, which was probably made long after the original work had first appeared. The author acknowledges that he had drawn most of his materials from earlier Greek writers, but with corrections and additions, for which we are indebted to himself. He is usually spoken of as belonging to the Methodic sect. But he is bound to no theory; he reasons and prescribes according to the exigencies of each case, usually with much skill and judgment. He goes over the whole subject of obstetrics, the diseases of the puerperal woman, and the management of the infant; he enters into the requirements of the sick room, the qualifications of an accomplished obstetrix, and those of a good nurse, the diet and exercise for the nursing woman, and the training proper for the child. He introduces many acute and discriminating remarks in

* Moschionis de Mulierum Passionibus liber. 12mo. Vienna, 1793. Other works of this author are also still extant.

connection with these subjects; as also in his chapters on suppression of the menses, inflammation of the uterus, hysteria, uterine hæmorrhage, fluor albus, displacements of the uterus, and the symptoms indicative of these. The work, in some of the editions still extant, has been subjected to objectionable interpolations; omitting which, it is worthy of the attention even of the modern practitioner.

The culinary art among the Romans was too intimately related to that of the apothecary, and had too close a bearing upon the practice of medicine, to be passed over in silence. Their principal writer in that department, Apicius Cœlius, by birth a Spaniard, and according to Athenæus,* very rich and luxurious, living chiefly at Minturnæ, in Campania, flourished during the reign of Trajan; and many of his preparations were as useful in the chamber of sickness as they were acceptable at the banquet. Among these might be noticed his aromatic wines, perfumed with the rose, the violet, and other fragrant flowers, in nearly the same manner as the ancient apothecaries prepared their aromatic oils. His formula for preserving grapes fresh throughout the year for the benefit of the sick, and his mode of preserving apples, pears, quinces, cherries, plums, and other fruits, are equally worthy of attention. His treatise is a work of much more pretension than most of our modern works on the art of cooking.†

It is divided into ten books, in which are dis-

* Deipnosophists, book i. c. xii.

† Apicii Cœlii de Opseniis et Condimentis, sive Arte Coquinaria, libri decem, 12mo. Amstelodami, 1709.

played the various mysteries of Greek and Roman luxury under the head of,—1st, Epimeles, or condiments and confections; 2d, Sarcoptes, or made dishes, mostly of animal food; 3d, Cepuros, or Hortulanus, referring to vegetables, pickles, and carminatives; 4th, Pandecter, mostly prepared vegetable dishes; 5th, Osprios, leguminous and pultaceous preparations; 6th, Aëropetes, or dishes prepared from birds of every kind; 7th, Politeles, sumptuous preparations mostly of animal substances; 8th, Tetrapus, or dishes from the flesh of quadrupeds; 9th, Thalassa, dishes from sea-fish, shell-fish, and the like; and 10th, Halieus, or dishes of fish procured by the angler.

From the Deipnosophists of Athenæus,* a junior contemporary of Galen, much, also, may be learned of the luxurious habits of the Romans.

Section III.—*Pliny the Elder.*

We have next to notice a Latin writer who, though not a physician, gave much attention to medical studies; and, as a compiler, has materially contributed to our knowledge of the profession among the ancients. I allude to Pliny the naturalist, or the elder, as he is often called, to distinguish him from his nephew. He was born at Verona, A. D. 23, during the reign of Tiberius, and received

* In 3 vols., London, 1854.

some portion of his early education in attendance upon the lectures of Appion at Rome. He was occupied, during the greater portion of his life, in the service of the state, in civil offices among the provinces, and in military enterprises in Germany and elsewhere, under Vespasian, who was attached to him as an intimate friend, and under Titus in Palestine. But notwithstanding the number and importance of his public duties, he found leisure for extensive reading, and for the exercise of his talents as a writer. He was the author of numerous works on history, on military affairs, and other subjects; but all that now remains of these is his Natural History, the last of his literary performances, compiled, A. D. 78, only two years before his death. He perished by suffocation, from venturing too near to Mount Vesuvius while in a state of active eruption.

This work of Pliny* is not merely a natural history in the present restricted meaning of the expression, but, as rendered by an old English translator, the natural history of the world, consisting of thirty-seven books, and treating of cosmography, astronomy, geography, physics, agriculture, commerce, medicine, the useful and fine arts, the moral constitution of man, and the history of nations, as well as natural history proper. The compass of the work, of necessity, included numerous topics with which the author was not personally familiar. He has, therefore, not aimed at originality, and has

* Caii Plinii Secundi Historiæ Naturalis libri xxxvii. vols. 5, Lipsiæ, 1830.

mostly restricted himself to condensing and transcribing from other writers. Nor has he in this labor evinced much talent as a discriminating compiler. He is neither choice in his selections, accurate in his quotations, nor unbiased in his judgment. But he has condensed his materials from more than two thousand authors, and from the reading of his whole life; and has thus furnished us with one of the most valuable of the literary remains of the ancients.

Like many of his countrymen, Pliny has not concealed his prejudice against the profession. He was friendly to the art rather than to those who practiced it. But, from his medical reading he has given ten books on the history of plants, including their uses in domestic economy and the arts; five books on the medical uses of plants; and five others on medicines derived from the animal kingdom. We are indebted to him for an account of several epidemics and new diseases; particularly, for his graphic history of Mentagra, a disease which appeared at Rome for the first time, during the reign of Claudius, and spread extensively among the nobility, sparing women and persons in humble life; communicated from one individual to another by the act of kissing; appearing first upon the chin, lips, and face, and afterwards extending over the surface of the body, in the form of eruptions, which degenerated into foul and offensive ulcers. The close analogy of this disease to that which first appeared in the south of Italy near the close of the fifteenth century, led many at first to the belief, that the Mentagra, or Lichen, of Pliny, was identical with

the venereal disease; and this disease, from first appearing on the pudendum, was, by Gasper Torrella and others, for a time called Pudendagra. Another interesting point in Pliny's history of the Roman epidemic, is that he distinctly alludes to the subject of contagion. The disease, he tells us, had previously existed in the East, where it was called by the Greeks, Lichen; and its contagion, he adds, was imported by a Roman knight, who communicated the *infection* to the inhabitants of the capital. This, it is true, is not the earliest allusion to the subject. Thucydides, as already shown, speaks of the plague as an infectious disease; and Aristotle, of rabies as spreading from one animal to another. Some of the medieval historians, as Evagrius,* allude to the contagiousness of plague. But the medical writers and teachers of Greece and Rome were too deeply involved in humoral pathology and the doctrine of the four elements, or too much disposed to reject the study of occult and remote causes altogether, to understand the exact bearing of this important subject; which appears never to have seriously entered into their discussions, and which was equally overlooked by the Arabic, and with the exception of Bernard Gordon, by most of the European medieval writers on medicine.† Pliny's allusion to contagion is merely inci-

* Ecclesiastical History, book iv. chapter xxix.

† Gordon's list of contagious diseases is summed up in the following distich:

Febris acuta, phthisis, pediculi, scabies, sacer ignis,
Anthrax, lippa, lepra, nobis contagia præstant.

Particula i. cap. xxii. p 117.

And when we remember that Gordon wrote in the year 1305, nearly two

dental; yet, it is the announcement of a truth, not of a speculation, derived from popular observation and belief; a truth long unheeded, but which no one at the present day would venture to call in question.

Pliny also enters fully into the history of ancient wines, and in speaking of the strong Falernian varieties, says they are inflammable: "Nec ulli in vino major auctoritas; solo vinorum flamma accenditur."† The modern wines, with only their natural supply of alcohol, are not of strength equal to this. It is therefore reasonable to infer that the art of distillation must have been known to the vintners of antiquity. If so, it must have been confined to some single fraternity of them, and practiced as one of their secret mysteries, only for the purpose of fortifying their wines; and thus kept secret until alcohol was discovered anew by the alchymists of the middle age, and the art of distilling it made public, for the first time, as is commonly believed, by Arnold de Villa Nova, in the latter part of the thirteenth century.

From what has now been stated of the progress of medicine at Rome, we may safely infer that the interval between Asclepiades and Galen, a period of about two hundred and fifty years, was, in the

centuries before the venereal disease is usually supposed to have originated in Europe, the following passage from his Lilium Medicinæ (Particula i. cap. i. p. 107) is worthy of special observation:

"Quædam comitissa leprosa venit ad Montem pessulanum, eratque tandem in cura mea, cui cum quidam Bacchalarius in medicina ministraret ei, coïens cum ea, eam impregnavit, et perfectissime leprosus factus est."

† Lib. xiv. c. viii. § 2.

number and ability of its writers; in the advancement of its teachers in anatomy, physiology, materia medica, therapeutics, hygiene, pathology; in the study of nature, and in the philosophy of medicine,—one of the most active periods in the whole history of our art. As such, it is more worthy of notice, from the fact that the native Romans were never seriously devoted to the cultivation of the sciences. But, quick discoverers of the useful, they knew how to improve upon the suggestions or discoveries of the Greeks. Their immense cloacæ for the drainage of the city, their public baths, their care in the selection of sites for new towns, villas, and private residences, their improvements in architecture, and the domestic arrangement of their dwellings, as set forth by Vitruvius and others, are sufficient to show that the lectures of their Grecian masters on the rules of health, had been properly appreciated, and the information thus diffused amongst them, turned to good account. But these improvements in the arts of civil life, were of comparatively short continuance; so that Galen, who flourished during the reigns of Marcus Aurelius and Commodus, and as late as Septimus Severus, was the last, as he is also acknowledged to have been by far the most distinguished, of the medical teachers of the Roman school. But before alluding further to this great master of our art, we must for a moment return to the provincial institutions.

CHAPTER IX.

GREEK WRITERS AND TEACHERS NOT OF THE ROMAN SCHOOL BUT CONTEMPORARY WITH IT.

Among the Greek writers not strictly of the Roman school, who flourished during the epoch at present under consideration, were Dioscorides of Anazarba, Ruffus of Ephesus, Aretæus of Cappadocia, and Marcellus of Sida.

Mr. Sharpe, the able historian of Egypt, makes Dioscorides the physician of Cleopatra. But Galen speaks of him as a recent writer; and from his own works* it is evident he must have lived as late as the reign of Claudius. He was probably educated at Alexandria, which still retained some share of its early celebrity. He subsequently traveled extensively in Europe and Asia, and for a part of his life was occupied as an army surgeon. His great work on the Materia Medica, the only complete treatise of the sort that had hitherto appeared, was the result of much personal inquiry and experience; and the portions of it not thus acquired, were drawn as he informs us, from the most reliable sources. Galen speaks highly of his accuracy; and, as an au-

* Pedanii Dioscoridis Anazarbei de Materia Medica libri quinque, &c. Lipsiæ, 1829–30; 2 vols., Kuhn's edition.

thority, his name is hardly yet obsolete among the writers on the materia medica. Besides this able treatise in five books, he has left a work on poisons. To him is also ascribed another work in two books, entitled Euporista, which is dedicated to Andromachus of Crete, physician to the emperor Nero. This latter work was, in all probability, by another hand. Whoever may have been its author, he has grouped his remedies according to their therapeutic actions, and their application to particular ailments.

Ruffus of Ephesus was the author of a treatise on anatomy, a short essay on diseases of the urinary organs, and a fragment on the use of purgatives, all of which are still extant.* His treatise on the Materia Medica, written in verse, has perished. His anatomical work is the only portion of his writings worthy of special notice, and this is of some value as showing the condition of anatomical science immediately before the time of Galen. His descriptions are mostly taken from his own observations. He alludes to the dissection of the human body as a practice permitted in a previous and more liberal age, and regrets the necessity of confining his own investigations to apes and other animals most resembling man. He speaks of the commissure of the optic nerves, of the arteries as containing blood, of the heart as the source of animal heat, of life, and of the arterial pulse. According to some writers,

* Ruffi Ephesii Medici, de Appellationibus Partium Corporis Humani libri iii.; Tractus de Vesicæ ac Renum Affectibus, et Fragmenta de Medicamentis Purgantibus,—Medicæ Artis Principes. Venetiis, 1567.

Ruffus, too, was physician to Cleopatra; but more reliable authorities place him as late as the reign of Trajan.

Aretæus of Cappadocia* appears to have been educated at Alexandria, or at least to have resided in Egypt. For, in treating of cynanche, a disease of which he has furnished an admirable description, he dwells upon the climate and modes of living there, as more likely to give rise to this disease than the climate or modes of life in Cœlosyria. The period at which he wrote is uncertain. Some have placed him prior to the reign of Augustus, and others after the time of Galen. There has been as much discrepancy among critics concerning the sect to which he belonged, as concerning his place of residence or the period at which he flourished. Aretæus is one of the most original and elegant writers of antiquity. For truth and accuracy of description, some have even placed him above Hippocrates. There is perhaps no modern writer to whom he can be more aptly compared than Heberden. He appears to have written at that period of life when the mind, tempered and enriched by ample experience, is more disposed to rely upon personal observation than on the teaching of the schools, and to pay little regard to theories unsupported by the revelations of nature. Starting with a thorough acquaintance with the science of his day, taking Hippocrates as his model, and repudiating all futile speculations, he details the simple results

* Aretæi Cappadocis Opera Omnia (Kuhn's edition), Lipsiæ, 1828.

of his own experience, in a systematic treatise of eight books on the history and treatment of acute and chronic diseases, and in a manner so striking and appropriate as rarely to have been excelled. His descriptions of marasmus, of phthisis, of angina, of asthma, and of mania, are frequently referred to as true to nature, and of poetic finish. Yet, he himself acknowledges his inability to paint to his own satisfaction, the ever-varying shades of disease; and advises every young physician to study for himself, and not to trust for all his knowledge to the commentaries of his instructors. In his practice he employs but few remedies, and never the monstrous compositions so much in vogue among the Romans. He makes frequent use of evacuants. Emetics, purgatives, and venesection, are his main agents in the management of acute diseases; in these also relying much on regimen, and on cooling and refreshing drinks. But in the management of chronic diseases, his practice is more diversified. His surgical is in keeping with his medical ability. He was the first, so far as I remember, to use the trephine for the cure of epilepsy. He employs catheterism in mechanical obstructions of the urethra, resulting from vesical calculus; for the removal of the stone, he recommends perineal section, by an incision immediately below the scrotum, and extending inward to the neck of the bladder until the urine and calculus escape. He employs the actual cautery for opening hepatic abscess, and cauterizes the scalp in certain diseases of the head. Besides his treatise on acute and chronic diseases, of

which the first four chapters of the first book are lost, he was the author of works on surgery, on fevers, on the diseases of females, and on the preparation of medicines; all of which have perished.

Marcellus, of Sida, in Pamphilia, was the author of a medical poem in forty-two books, in which he described a strange malady called Lycanthropia, a species of mania, in which those affected growled aloud like wolves, and during the night wandered at large in lonely places, and among the tombs; and in which the most aggravated period of the attack was usually in the spring time. Marcellus flourished about, or just prior to, the time of Galen,* and is quoted by Oribasius† and Aëtius.‡

Having ventured beyond the limits of the capital, we may remark that many of the physicians who taught or practiced there, had been educated in Asia Minor, in the cities of which were many flourishing though now forgotten schools. The names of several distinguished Roman professors, were associated with Ephesus. Among these was Magnus, a writer on the pulse, and the inventor of theriacæ after the manner of Heras and Andromachus. Of this same school were the anatomist Ruffus, and the second as well as the third Soranus.

The school of Pergamus, to which we have already on more than one occasion alluded, was still a flourishing institution, and the theater of a long list of able teachers. At the head of this school in the

* In the Biograph. Médicale he is placed under Adrian and Marcus Aurelius.

† Synopsis, lib. v. cap. x. p. 266. ‡ Tetr. ii. serm. ii. c. xi. col. 254.

early part of the first century, was Quintus, a consummate anatomist, and the ablest physician of his time.*. Though not mentioned as a writer, he was followed by several able disciples, as Lycus of Macedon, Marinus, Pelops, Numisianus, and Satyrius; of all of whom Galen speaks in admiration,—of Marinus, as the author of an elaborate treatise on anatomy; and of the others, as his own preceptors. He further informs us, that at the Asclepion of this city, built by Costunius Rufinus, the friend and coadjutor of his preceptor Satyrius,† the pupils were in daily attendance upon the sick, studying their diseases at the bed-side, and acquiring such chance acquaintance with the organization of the human body as could be obtained from witnessing the surgical operations and dissections of their instructor. Even after Galen's time, this school maintained its early celebrity; and we are told that the emperor, Caracalla, visited the city expressly for obtaining the advice of its professors.‡

* Galen, vol. xiv. p. 602.

† Ibid. vol. ii. p. 224–5, and elsewhere.

‡ Le Clerc, parte premiére, liv. i. chap. xx. p. 63.

CHAPTER X.

GALEN.

CLAUDIUS GALEN,* the prince of physicians, was born at Pergamus, A. D., 131; and, under the judicious care of his father, Nico, received every advantage of early education at his native place. At the age of seventeen, he was placed as a student at the Asclepion of Pergamus, under Satyrius, the pupil and successor of Quintus; and in the course of his studies had the advantage of instruction from Stratonicus, a Hippocratic rationalist, and from Æschrion, an empiric. On the death of his father, Galen, now twenty-one years of age, removed to Smyrna to continue his medical studies under Pelops, another pupil of Quintus; and to pursue the study of Platonic philosophy under Albinus. He next retired to Corinth, there to become the pupil and assistant of Normiscianus, also a former pupil of Quintus; and subsequently, he traveled through

* Claudii Galeni Opera Omnia, Kuhn's edition, 20 vols. 8vo. See the Historia Literaria prefixed to this edition, from the pen of Ackermann; see, also, Sprengel; the article Galien in the Biographie Médicale; the article Galen in the Dictionary of Classical Biography; and a cursory analysis of the works of Galen, so far as they relate to Anatomy and Physiology, by J. Kidd, M. D., in the Transactions of the Provincial Med. and Surg. Association, vol. vi. p. 301.

various countries, spending some time at Alexandria, still the most celebrated school of medicine, and was there, for a season, the pupil of Heraclianus, a professor of whom he speaks in the highest terms.

While journeying in pursuit of knowledge, he allowed no opportunity to pass unimproved for familiarizing himself with every circumstance bearing directly or indirectly upon his medical and philosophical inquiries; and even at an earlier age, he adopted the habit of writing commentaries on the philosophical works to which his attention had been directed.

At the age of twenty-eight, having completed his education, he returned to his native place, and by the priests of Æsculapius, was placed in charge of the gymnasium then attached to their temple, and at which the athletæ and gladiators were in the daily habit of exercising. The office of physician to this institution, he held for several years, during which time he had constant occasion for exercising his talents as a surgeon. But in consequence of political disturbances, he again retired from Pergamus, and at the age of thirty-four took up his abode in Rome.

Here he was not long in making himself known; a few successful cases among persons of elevated social rank, placed him almost immediately at the head of his profession. His earliest patron was Eudemus, the peripatetic philosopher; his next, the wife of the consul Boëtius. His cure of this noble matron was rewarded by a present of four hundred

gold pieces; and what was of more avail, it secured to him the friendship of the consul; of the prætor, Sergius Paulus; of Barbatus, the uncle of the emperor; of Marcus Aurelius himself; and of his brother, Lucius Verus, then associated with him on the throne.

This rapid promotion was not without its disadvantages. It excited against Galen the vituperation of certain members of the profession; and he, in turn, was not backward in expressing his contempt towards all who had undertaken to oppose him. But, rising by the force of merit, he maintained without difficulty the position he had acquired. To silence his opponents, he opened a school of anatomy, which still further increased his popularity, and attracted to his demonstrations not only students of medicine, but philosophers, politicians, and others, of the highest rank and influence. After he had been thus occupied for three or four years, his patrons of Rome were suddenly dispersed by an epidemic; and after their retirement to their usual summer retreats, Galen, too, left the city for Campania. Spending some time here, and at Brundusium, he afterwards set out on a visit to the East; but, before the close of the year, he was recalled from Pergamus by Marcus Aurelius, then in Aquileia, with his brother Lucius Verus, preparing for a military expedition against the Marcomanni, and who had assigned to Galen the business of providing medical stores, and making such preparations as were necessary for the medical care of the army. Accordingly, hastening through

Cyprus, Syria, Thrace, and Macedonia, he directed his course to Rome, and thence towards Aquileia. But the epidemic having extended thither, and his patron Lucius Verus having died of it, the expedition was deferred, and Galen seized the opportunity to resume his occupation at the capitol. Nor could he be again induced to join the army, even at the solicitation of Marcus Aurelius; assigning as an excuse that in a vision he had been warned not to do so, by Æsculapius. During the subsequent absence of the emperor in the north, Galen was successful in treating his two young sons, Commodus and Sextus; thereby securing the favor of their mother, Faustina. Thus, in the enjoyment of unbounded popularity, devoting his attention to the poor as well as to the rich, and giving no inconsiderable portion of his time to teaching and writing, he spent the vigor of his life in Rome; where he was still residing, though disembarrassed from the cares of his profession, in his old age, as late as the reign of Septimus Severus. At a still later period he retired to Pergamus, where he spent his later years, and where he died, according to the most reliable authority, about the close of his seventieth year; though by some writers he is said to have survived to an extreme old age. His immense erudition, his glowing eloquence, and the almost endless labors of his pen, not less than his profound acquirements in anatomy and every other department of the healing art, had raised him before his death to the most exalted rank; and after his decease the people of Pergamus, proud of their fellow-citizen, and desirous

to express their reverence for his name, struck medals to his memory.

The personal character of Galen is seen in the numerous incidental allusions and amusing anecdotes scattered through his writings, some of which are of sufficient importance to be given in his own manner.

"Soon after my arrival in Rome," says he, "Glauco the philosopher took a great fancy to me, in consequence of my reputed skill in diagnosis. Meeting me accidentally in the street and shaking hands with me, he remarked, 'I have fallen upon you opportunely. I wish you to visit with me a patient in this neighborhood whom I have this moment left—the Sicilian physician whom you saw walking with me some days since, and who is now ill.' I inquired of him what ailed his friend; when with his habitual candor he replied, that Gorgias and Apelas had spoken to him of my skill in diagnosis and prognosis, which appeared to them more like the result of divine inspiration than of medical science; and that he wished to know for himself whether I really was thus skillful. He had hardly done speaking before we reached the door; so that I had no opportunity of replying to his request—as I have often said to you—that on some occasions the signs of disease are certain, at other times they are ambiguous, and require to be considered again and again. But as we entered, I observed a servant carrying from the sick chamber a vessel containing a thin bloody sanies, like the recent washing of flesh, a sure evidence of diseased liver. Without appearing to notice this circumstance, I proceeded with Glauco to the pa-

tient's apartment; when placing my fingers on the wrist of the sick man, I examined his pulse in order to determine whether the attack was inflammatory, or simply a weakness of the affected viscus. As the patient was himself a physician, he remarked that he had recently been up, and that the effort at rising might have accelerated the pulse; but I had already discovered the evidences of inflammation; and seeing on a recess in the window a jar containing something like a preparation of hyssop in honey and water, I knew that he had mistaken his disease for pleurisy; in which, as in inflammations of the liver, there is usually pain under the false ribs. He had been led to this opinion, as I at once perceived, by experiencing this pain, by his short and hurried breathing, and by a slight cough. Understanding the case, therefore, and turning to good account what fortune had thrown in my way, in order to give Glauco a high opinion of my ability, I placed my hands over the false ribs, on the right side of the patient, and at the same time declared this to be the seat of pain; which the sick man admitted to be correct. Glauco, supposing I had made this discovery merely by examining the pulse, began to express surprise. But to increase his astonishment, I added, 'Inasmuch as you admit the existence of pain at this spot, I wish you further to say whether you are troubled with a slight cough, and whether your cough is not dry, without sputa, and occurring at long intervals.' While I was yet speaking the sick man was seized with a cough such as I had described; whereat Glauco was exceedingly excited, and no longer able

to contain himself, began to vociferate in praise of my abilities. 'Do not think,' said I, 'that these are all the discoveries my art enables me to make; there are others yet to be mentioned, which will elicit the testimony even of the patient.' Then turning to the latter I resumed: 'Is not the pain in this part increased, and accompanied with a sense of weight in the right hypochondrium, whenever you take a full breath?' At hearing this the patient also was surprised, and was as loud in my praise as Glauco. Seeing fortune still smiling upon me, I was desirous of making some remark in reference to the shoulder, which appeared to be drawn downwards, as often occurs in severe inflammations as well as in induration of the liver; but I did not venture to speak on this point, fearing to diminish the admiration which I had already excited. Nevertheless I touched upon it cautiously; saying to the patient, 'You will not long feel the shoulder drawn downwards, if perchance you do not find it so already.' When he admitted this symptom also, seeing him greatly astonished, I said, 'I will add but one other word to show what you conceive to be the nature of your complaint.' Glauco declared he would not be surprised if I should do even this. But the patient, overcome with wonder at such a promise, observed me closely, waiting for what I should say. I told him he had taken his disease to be a pleurisy. This, with a further expression of surprise, he admitted to have been his own opinion, as well as that of his attendant; who had been fomenting his side with oil, for the relief of that disease. From this time for-

ward Glauco entertained the highest opinion both of me and of our art; for, having never before come in contact with a physician of consummate ability, he had hitherto formed but an humble estimate of the profession. I have related to you these particulars," he adds, as if addressing a class of students, "in order that you may understand that there are symptoms peculiar to particular diseases, and others common to several diseases; and, further, that there are some symptoms inseparable from the disease, some usually accompanying it, others again of uncertain character, or of rare occurrence; so that if fortune at any time offers to you a good opportunity, as in the instance just related, you may know how to take advantage of it; remembering that fortune often presents to us the means of acquiring fame, which, through ignorance, many are unable to turn to good account."*

The following is equally characteristic: "There are," says he, "certain persons who promise to prove that the arteries do not contain blood, yet never test their assertion by dissections. A teacher of this sort having asserted his ability to show that the aorta is always empty, and not demonstrating the fact, was exhorted to do so by a number of ambitious young men who had provided animals for the purpose. At first he refused to comply with their request unless suitably rewarded; whereupon they placed before him a thousand denarii as an inducement to prove his assertion. After much

* De Locis Affectis, lib. v., c. 8; Kuhn's edition, vol. 8, p. 361.

prevarication, when urged to proceed by all present, he took the scalpel in hand, and began by making an incision in the left side of the chest, where he imagined the artery could be exposed; but such was his want of anatomical skill that he cut directly down upon the bone. One of his associates, however, having opened through the intercostal spaces, he, again proceeding, injured in the first place the artery, and afterwards the vein. The young men who had deposited the money with the spectators, now, laughing at him, undertook the experiment themselves. They dissected through the intercostal spaces, as they had been previously taught by me, in such a way as not to injure the vessels; and without delay surrounded the artery with two ligatures; one at its point of departure from the heart, the other where it rests upon the spine, just as these boastful teachers had promised to do, in order that when the animal was dead one might see, from so much of the vessel as lay between the ligatures, whether or not the artery was empty of blood. But when it was not found to be empty, they declared that an incision must have been made in it at the time of applying the ligature; as if some other individual, and not these teachers themselves, had promised the demonstration. For they had never tried the experiment in presence of witnesses, nor could they have had much skill in applying the ligatures, since they did not even know that the artery and vein both extend to the lower boundary of the ribs."* The order of applying the two liga-

* Adminis. Anatomic., lib. iii. cap. 7. See also Kühn's edition of Galen, vol. ii. p. 642.

tures given above, evinces how imperfect must ha been Galen's knowledge of the course of the bloo through the aorta.

An admirer of Plato and Aristotle whose doctrines he would have attempted to reconcile, he was the strenuous opponent of the Epicureans. After a burst of indignation against all who would place their supreme good in the gratification of their own will, he exclaims: "Why should I waste words on such men! Others of nobler understanding might well censure me for thus perverting the sacred attribute of speech, which ought to be reserved for composing hymns in adoration of the Author of our being. I hold true piety to consist, not in sacrificing to him hecatombs of bulls, or in burning incense of cassia, or of hundreds of fragrant ointments, to his honor; but rather in ascertaining for myself, and in teaching to others, something of his wisdom, his goodness, and his power. I hold it to be the most convincing evidence of his goodness, that he has supplied every creature with what is most convenient for its use, and that all are supported by his bounty. On this account it becomes us to celebrate his goodness with hymns of praise. We see, as evidence of his consummate wisdom, that he has chosen the means most appropriate for accomplishing his own designs. And seeing that he has created all things agreeably to his own will, we have evidence of his almighty power."*

Many of the minor works ascribed to Galen may have been composed in his earlier years; but most of

* De Usu Partium, lib. iii. cap. 10, vol. iii. p. 287.

those upon which his fame reposes were written after his recall to Rome. Some portion of his writings, among these the two books of Anatomical Administrations which he had composed after the method of Marinus, were consumed during the conflagration of the temple of Peace and the destruction of his own dwelling; other parts have perished since his death. Yet we have now in print and assigned to him, eighty-two treatises, the genuineness of which is undisputed; eighteen upon which the critics are not so well agreed; nineteen fragments, more or less voluminous; and eighteen commentaries on Hippocrates. To which should be added nearly forty treatises or fragments of treatises still extant in manuscript. His works now wholly lost, are supposed to amount to one hundred and sixty; about fifty of which were on medical subjects. He was also known as a philosophical writer; and to have devoted a portion of his labors to grammar and mathematics.

The works most highly esteemed in the Galenical collection, are the Administrationes Anatomicæ, De Usu Partium Corporis Humani, De Locis Affectis, Methodus Medendi, another treatise on the same subject addressed to Glauco, De Prænotione, Ars Medica, and, if really his, the work entitled Medicus or Introductio, which by some critics has been ascribed to Herodotus, one of his immediate predecessors. Worthy to be associated with the foregoing are the treatises: De Ossibus, De Elementis, De Temperamentis, De Atrabile, De Facultatibus Naturalibus, An in Arteriis Natura Sanguis

Continentur, De Præsagatione ex Pulsibus, De Simplicium Medicamentorum Temperamentis et Facultatibus, De Compositione Medicamentorum, De Curandi Ratione per Venæ Sectionem, De Sanitate Tuenda, Quod Animi Mores Corporis Temperamenta Sequantur, De Fœtuum Formatione, and a few others.

In the first of the works cited above, we are told of the few occasions enjoyed by the ancients for acquiring correct anatomical knowledge. The first five books of this treatise are occupied in describing the muscles, many of which are here mentioned for the first time. In connection with the muscular system he speaks of the blood-vessels. In the sixth book are described the organs of digestion; in the seventh, the heart; in the eighth, the respiratory organs; in the ninth, the brain and spinal marrow; and in the six remaining books, which have perished, he treated of the eye, the tongue, the pharynx, the larynx, the os hyoides, the history of the arteries and veins, the cerebral and spinal nerves, and the organs of generation. Many facts incorporated in this important production have been claimed to be the discoveries of later times.

The treatise De Usu Partium, written soon after his return to Rome, is also replete with anatomical details, interspersed with physiological opinions; but is rather a dissertation on final causes than a strictly anatomical performance: the author's main object being to disprove the doctrines of Epicurus and demonstrate the existence of a superintending Providence, from the wonderful adaptation of

means to ends in the organization of the human frame. In this admirable discourse is found that eloquent exposition of the powers and uses of the human hand, the leading thought of which may have been borrowed from Anacreon, but upon which no subsequent writer has been able to improve. And here, too, are found those hymns to the Deity, and other pious ejaculations, so worthy of the philosopher and moralist. This work is in seventeen books, and has been preserved entire.

The treatise De Locis Affectis in six books, was the work of his maturer years. In this, with wonderful sagacity he points out every part of the body subject to pains, convulsions, paralysis, or other symptoms; and to which our attention should be directed for investigating into the causes of disease. This valuable treatise, which is occupied mainly with pathology and symptomatology, the learned Haller held in higher estimation than any other of Galen's works.

The Ars Medica was for many centuries the text-book upon which the students of Salernum, and other schools of the middle ages, were examined before receiving permission to practice. Commencing with the definition of medicine, it treats of the signs of health, of the temperaments generally, and of their influence on special organs in health and disease. It next treats of the signs of disease—general and local, of prognostic indications, of the causes of disease, of the means of preserving health and of restoring it when disordered; thus furnish-

ing in small compass an exposition of the whole of Galen's system of medicine.

The Methodus Medendi, in fourteen books, was the work of his old age, and was held by his followers in nearly the same estimation as the Ars Medica. The two books, on the same subject, addressed to Glauco, treat mostly of generalities. More information, it has been said, may be obtained from this work than from the whole medical literature of the Arabians. Galen, as before remarked, frequently refers incidentally to his own history, particularly in the Administrationes Anatomicæ, Ars Medica, De Usu Partium, De Locis Affectis, De Præcognitione ad Epigenem, De Antidotis, De Theriaca ad Pisonem, and in a work of his later years entitled De Propriorum Animi cujusque Adfectuum Dignotione et Curatione.

His original investigations were chiefly in the department of anatomy. In this he made many discoveries, mostly in the muscular system. But from the manner of treating the subject, it is difficult to determine precisely how much of his anatomical knowledge was derived from his own researches, and how much from the labors of his predecessors. He was the first to describe the popliteal muscle, the platysma myoides, the sterno and thyro hyoidei, and probably many others. In anglology he was not much in advance of the early Alexandrians. Like them, he placed the origin of the veins in the liver, of the arteries in the heart. He was familiar with the anastomoses of the two

orders of vessels; he traces the current of blood from the liver, the supposed fountain of the venous portion, into the right ventricle of the heart, and through the pulmonary vessels to the left ventricle. He was acquainted with the uses of the opening between the right and left auricle; but in other respects his ideas of the course and distribution of the blood were confused and incorrect. He appears to have made several discoveries in the nervous system,—he points out the tubercula quadrigemina, corpus callosum, and septum lucidum; he derives the nerves of sensation from the brain, those of motion from the spinal marrow, and to some nerves he assigns both sentient and motive power; he denies the decussation of the optic nerves, but admits their junction at the commissure. He describes the par vagum and its connections with the sympathetic. Certain organs, as the heart and blood-vessels, he supposes to be destitute of nerves, and hence devoid of sensibility. He took much trouble to determine the structure and development of the human fœtus. He allows no occasion to escape for impressing upon his students the importance of anatomical knowledge, advising them to inspect the human cadaver when possible; or where this cannot be obtained, to dissect monkeys and other animals. These were the subjects of his own study; and from them nearly all his own anatomical descriptions were derived.

In respect to physiology, he speaks of the living body as a unit,—though constituted of parts or organs, simple and compound, of humors, and of

spirits. With Empedocles he maintained, that all the parts, by which he means the material structures, whether simple or compound, are constituted of the four primitive elements,—fire, air, earth, and water; from which are derived the four corresponding qualities, the hot, the cold, the dry, and the humid.

He also enumerates four humors; the blood, which is red, hot, and moist; the phlegm, which is white, cold, and humid; the bile, which is yellow, hot, and dry; and the melancholia, or atrabile, which is black, cold, and dry. These two latter he holds to be partly excrementitious. From the combination of the elements and their respective qualities, results the complexion or Chrasis, of each part or texture of the body. The preponderance of one or another of the four humors gives rise to the corresponding temperaments. In common with the Peripatetics, he attributed the essential phenomena of life to certain occult forces inherent in the several parts or organs. These forces he divides into the vital, the animal, and the natural. The seat of the first is in the heart; of the second, in the brain; and of the third in the liver. But above all these forces he admits, with Hippocrates, the presiding and ruling influence of Nature; a word which by ancient usage was equivalent to the modern expression, vitality, vital force, organic force, or principle of life.

The spirits, under the common name of Pneuma, he also divided into the vital, the animal, and the natural; corresponding with the respective forces

by which the functions of the body are performed. The natural, or least attenuated of the spirits, are evolved from the blood in the liver, the organ in which the blood itself is first elaborated. Conducted with the blood to the lungs, and there exhaling certain impurities, and combining with the respired air, the natural are converted into the vital spirits; and passing afterwards to the brain, the vital become still further attenuated and converted into the animal spirits.

The functions are also of three corresponding orders, the vital, the animal, and the natural. To the first of these belong the action of the heart and arteries, the passions of anger and revenge; to the second belong the intellectual powers, intelligence and sensibility; to the third belong the functions of nutrition, muscular action, and generation; and these functions he further divides into the external and internal. By the intervention of the pneuma, the vital force produces the pulsation of the heart and arteries. He undertakes to prove experimentally that an interspace exists between the lungs and pleura, in which the respired air is expanded. He holds that the blood is cooled, the pneuma relieved of its fuliginous particles, and the blood endowed with the vital force, by the process of respiration; and that this process is effected by means of the diaphragm and intercostal muscles.

The brain is the seat of the rational mind; the heart is the seat of courage and the angry passions; the liver is the seat of desire. By the internal pul-

sation of the brain, the pneuma of the ventricles is engendered, and in these ventricles the functions of the mind are executed. The passage of the vital spirits from all parts towards the brain, where they acquire new qualities, explains in what way the mind is influenced by the body. But it is not clear whether he looked upon the mind as an entity, or as a mere result of organic action. From the brain, by the agency of the nerves, sensibility and motive power are diffused throughout the body; but special forces subordinate to the mind, preside over the functions of special sense. The brain in the performance of its functions exudes a thin pituitous humor, which is discharged through the foramina in the cribriform plate of the æthmoid bone, and escapes through the throat and nostrils.

The natural functions are accomplished by the pneuma, through the medium of the blood. But every organ has its own peculiar forces of attraction, retention, and expulsion, analogous to the forces which have recently been called endosmosis and exosmosis. Thus, by its own peculiar power the stomach attracts the aliment, retains it, concocts it, or expels it. The genital apparatus of the two sexes differ only in this; that while in the male they are external, in the female they are wholly internal. The uterus has as many separate cavities as the animal has mammary glands. The seminal fluid is in the female from the ovaries; in the male, from the testes. The commingling of the two fluids results in a male or female fœtus, according as the

fluids are from the organs of the right or left side. The placenta supplies the fœtus with blood and pneuma. The brain, derived directly from the seminal fluids, is developed before the heart.

From this short exposition it will be seen, that his physiological opinions were mostly hypothetical. Yet in many points he entered into experimental inquiries for maintaining them. In this way he established the influence of the nerves over the voluntary muscles; and the existence of red blood, instead of simple pneuma, in the arteries,—a fact, however, known before his time.

In hygiene, his rules are characterized by minute refinements. Among the fundamental laws of health, he asserts that the different parts of the body are maintained in healthy action by those agencies and influences only with which they hold special relations. He distinguishes men into three classes: 1st, the naturally sound and rugged, living at ease, and able to bestow proper care upon their health; 2dly, those constitutionally feeble and delicate; lastly, those whose occupation obliges them to live irregularly. His four epochs of life—infancy, youth, manhood, and old age—have their respective tendencies and immunities; the last period he looks upon as for the most part a condition of disease. By carefully studying the circumstances of age and habit, in connection with the temperament, he establishes his rules of health. He examines in detail the influence and uses of what are called the non-naturals,—air,

aliment, exercise, repose, and the like. His precepts in respect to these are judicious. He advises mothers to nurse their own offspring; he deprecates the practice of attempting to strengthen young infants by immersing them in cold water, as sometimes advised. He was an advocate for a rigid diet, and insists that no occupation should be allowed to interfere with regular daily exercise.

In Pathology, he was aware of the importance of tracing the general symptoms of disease to the organs or parts primarily affected. This study he has illustrated in his treatise *De Locis Affectis*, the ablest of his pathological works. He makes health to consist in freedom from pain, and in the easy and unembarrassed exercise of all the functions; implying in this an equable intermixture of the four elements, and proper relation between the solids and fluids. Disease, on the contrary, he makes to consist in a disturbed condition of one or more of the functions. The diathesis, or predisposition to disease, he distinguishes from the disease itself. The diseases of the simple parts depend in general on disproportion in the union of their elementary constituents. The distemper itself may be either material, or independent of matter. The symptoms of disease are the result of derangement of function, or of change in the apparent qualities, or of disordered secretions. The causes of disease are external and internal. The former, or the Procatartic, are necessary to give play to the second, which are subdivided into the antecedent and the

conjoint. The most frequent of the internal causes is the superabundance or the degeneration of the humors.

Plethora is the result of a relative or absolute superabundance of blood. Cacochymia is from the superabundance of the other humors by which the blood becomes corrupted. Every alteration of the humors from their healthy condition is called a putridity. The heat developed by putridity gives rise to fever, by being communicated to the heart and arteries. With the exception of ephemeral fever, which depends on some particular alteration in the pneuma, all fevers arise from corruption of the humors. Among the intermittents, a quotidian arises from corruption in the phlegm; a tertian, from corruption in the bile; a quartan, from a corresponding condition of the atrabile. The entrance of blood into parts which do not naturally contain it, gives rise to inflammation. If the blood thus enters simply, the inflammation becomes phlegmonous; if accompanied with pneuma, the inflammation is pneumatous; if with the pituita or phlegm, it becomes œdematous; if with the yellow bile, erysipelatous; and if with the atrabile, scirrhous. Advocating the Hippocratic doctrine of critical days, he attempts to support it on grounds purely theoretical, and drawn from the periodical changes in nature, or the influence of the stars. His fondness for subtile refinement is nowhere more clearly seen than in his numerous and, as they must now be considered, fanciful divisions of the pulse.

In Prognosis, he appears to have been remarkably skillful. In this department of pathology he enlarged considerably on the precepts of Hippocrates. He has with equal perspicuity treated of indications and contra indications; and in this study he demonstrates the superiority of the system and practice of the rationalists, over those of the empirics. The essential character of disease, where this can be discovered, furnishes the most reliable indications of treatment. But where this cannot be discovered, the indications may be taken from the season of the year, the state of the atmosphere, the temperament or mode of life of the patient, or, in rare and exceptional instances, from the symptoms. Health, he holds, is maintained by supplying similar with similars, whilst disease is overcome by opposing contraries to contraries. These two propositions furnish the key to his whole system of hygiene and therapeutics.

His regimen for the sick is in strict conformity with that of Hippocrates. But in his mode of managing many individual ailments, he diverges widely from his great model. The use of the lancet and of purgatives, he at times appears to have carried to extremes. Like most of the rationalists, he made use of cupping; but leeches, which were first introduced into practice by Themison, and freely used by the Methodic sect, he does not appear to have employed. Although not specially devoted to surgery, he evinces much skill as an operator; he introduced some new ideas while still officiating at the gymnasium of his native place, in reference to

the treatment of injuries of the nerves. He applied the trephine successfully to the sternum for evacuating the contents of an abscess behind that bone. He had on four occasions witnessed anterior luxation of the femur; twice he cured what was supposed to be spontaneous luxation of that bone; and, what speaks no little in favor of his humanity, he deprecates the use of caustics and the cautery, which were so generally employed and so much abused in ancient times.

In his several works on the Materia Medica, and on medicinal agents, simple and compound, he again differs widely from Hippocrates, whom he elsewhere affects to follow. For though he occasionally discountenances the custom of administering exotic medicines, and ridicules those who despise familiar plants, yet he is fond of heterogeneous mixtures, and quotes with approbation many of the complicated formulæ of his predecessors; but it is to be admitted that his own confections are not so complex as those which he borrows from other authors. The doctrine of primitive qualities he extends to his medicinal agents; and these qualities he deduces from the corresponding secondary properties: thus, bodies primarily hot are salt; and those primarily dry, are bitter. Again, each of the four primitive qualities may exist in the first, second, third, or fourth degree: thus, chicory is cold in the first degree, and pepper is hot in the fourth. Or the agent may owe its medicinal effect to the union of two or more primitive qualities; thus, it may be hot and dry, or cold and moist. Each viscus, in consequence of the analogy between its primitive

qualities and those of certain remedial agents, exercises upon these agents a specific or peculiar attraction. Again, the qualities of agents may be actual or potential;—fire is actually hot, pepper is potentially so. This distinction is still observed in modern times in reference to the cautery. Certain medicines, as specifics, purgatives, several of the poisons and their antidotes, act not by their primitive qualities, but by their whole substance. The art of medicine in Galen's time consisted mostly in devising or applying particular remedies to particular diseases, each ailment having, as was supposed, its own particular remedy. From the usages of his contemporaries in this respect he did not vary; and like most of them, he had his shop, in which his medicinal compounds were prepared, but only for legitimate purposes. He had a horror of charlatans of every stamp; and that branch of the apothecary's business which the moral tone of modern times no longer tolerates, the open sale of poisons, so common in former times, he condemns in the severest terms.

Galen wrote no work expressly on the practice of medicine; but he has left a complete code of medical science, the only complete code of which we read among the ancients. Possessing in its individual parts no great originality, made up of the doctrines of his predecessors of every sect, and disfigured by occasional incongruities, yet, as a whole, this code is remarkable for its general unity and consistency. But its fundamental doctrines are too often the creations of the imagination. In all his works Galen delights to display his erudition; and notwithstand-

ing their vast number they are mostly written in polished style. He professes to be the admirer and disciple of Hippocrates. Yet no two writers on medicine were ever in style and substance more dissimilar. Hippocrates wrote with the terseness of a philosopher; Galen, with the flowing redundancy of the rhetorician, allowing nothing to remain unsaid, and adorning his discourse with criticism, biography, anecdote, sarcasm, vain-glorious boasting, personal narrative, and incidental allusions of every sort. But his brilliant errors no less than his sterner truths, gave popularity and influence to his writings. It does not appear that among the Latins he was at first received as favorably as among his own countrymen. He is mentioned neither by Serenus Sammonicus, who immediately succeeded him; nor by Marcellus Empiricus, who wrote two centuries afterwards. But the next writer of celebrity among his own nation, Oribasius, who was a contemporary of Marcellus, appropriated nearly the whole of Galen's doctrines; and Alexander Trallianus calls him the divine. But authority, however transcendent, to be enduring must be founded on truth alone. The authority of Galen was not thus founded; and after a reign of more than twelve centuries, he has fallen from his high estate. He who looked upon himself as superior to Hippocrates, who held that the latter had merely commenced what he himself had been able to carry to completion, lies buried in the accumulations of his own labors; whilst Hippocrates, drawing his inspiration from the developments of nature, still

lives, to be studied with as much edification by the physicians of the present day as by his own immediate disciples.

CHAPTER XI.

LATIN MEDICAL WRITERS SUBSEQUENT TO GALEN.

With Galen closes all that remains of the school of medicine at Rome, and all that was aggressive in the scientific advancement of the ancients. Most of those who had practiced or taught the art at Rome, up to this period, as we have already seen, were Grecians who had received the elements of their education at Alexandria or other eastern institutions. With the decadence of the Roman school, that of Alexandria again acquired its former rank. The intestine commotions and misrule, the religious and other wars of the empire, from the death of Marcus Aurelius to the accession of Constantine, left but little opportunity at the capital for cultivating the arts of peace. During this long interval, Italy had but few attractions for men of learning. And after the removal of the imperial court to Constantinople, the scholars that still lingered about the palace of the Cæsars, were attracted from the Latin portion of the empire; so that, from the time of Galen to the final overthrow of the empire of the West, Latin literature can boast of only four or five medical authors whose works have been deemed worthy of

preservation. The first of these was Serenus Sammonicus, a junior contemporary of Galen; the second was Theodore Priscian; the third, Marcellus Empiricus, physician to the elder Theodosius; the fourth was Vegetius; and the last, if properly belonging to the ancients, was Macer Floridus, our notice of whom must be reserved to a subsequent chapter.

Quintus Serenus Sammonicus was the author of a medical poem of considerable literary merit,* which is said to have often furnished amusement for the leisure hours of Geta and Septimus Severus. In this work he treats of several diseases and their cure, after the manner of the other medical writers of that period, but with more than their usual taint of superstition. He affects a peculiar veneration for the numbers three, seven, and nine; and, though he condemns the use of incantations, he recommends an amulet which he calls the Abracadabra,† to be sus-

* Sereni Sammonici de Medicina Præcepta. 8vo. Paris, 1845; also, the same work in the Medicinæ Artis Principes, as collected by H. Stephanus. Fol. Venice, 1567.

† This word is said, by Selden, to have been the name of one of the Syrian divinities. The written form of the amulet was as follows:

A b r a c a d a b r a
a b r a c a d a b r
a b r a c a d a b
a b r a c a d a
a b r a c a d
a b r a c a
a b r a c
a b r a
a b r
a b
a

The Talmudists used the word Abraclan after the same manner. See Le Clerc, partie i. liv. i. chap. xii. p. 41.

pended by a string and worn as a necklace for the cure of hemitritic fever. This amulet consisted in writing on cloth or parchment, the word Abracadabra in full on the upper line, and on every succeeding line omitting a single letter until the initial letter was at length the only one remaining to be written on the last line. Thus making, by means of these letters, a triangular figure. During the reign of Caracalla, the use of charms and amulets had become so alarming that an imperial edict was issued against them. Serenus Sammonicus gave offense to the tyrant by disregarding this injunction; and he is said to have paid for his temerity with his life. The belief in charms and incantations, which became so common towards the downfall of the empire, has been attributed by some writers to the influence of the false philosophy of Persia and the East. But mysticism and credulity have their source in the human heart, and are everywhere the natural offspring of ignorance and intellectual debasement.

Theodore Priscian, a pupil of Vindician, physician to Valentinian, flourished at the Eastern capital, and was the author of a work on the use of indigenous medicines. He appears also to have paid much attention to the diseases of women. A digest of his opinions on all that relates to the obstetric art in connection with those of his predecessors, Cleopatra and Moschion, is to be found in the Harmonia Gynæciorum of Casper Wolphius.* A Latin poem

* Constituting one of the works in the collection entitled Gynæciorum, sive de Mulierum Affectibus Commentarii Græcorum Latinorum Barbarorum, in tres tomas digesti. Published in 4to. at Bâle, 1586.

on weights and measures, sometimes ascribed to Q. Rhemnius Fannius Palæmon, is also attributed to Priscian.*

Marcellus Empiricus flourished about the close of the fourth century, some time after the struggle for the supremacy of Christianity in the empire had been crowned with complete success. He was by birth a Gaul, a native of Bordeaux, and as already stated, physician to the elder Theodosius. From the dedication, and other passages scattered through his book, De Medicamentis,† it is evident he was a Christian. In the preparation of his works, which he inscribes to his sons, he has consulted some few of the Greek, but more of the early Latin authors; among whom he refers to Pliny, Apuleius, Cornelius Celsus, Apollinaris, and Designatianus. Among the illustrious men who were of his own city, and whom he speaks of as his contemporaries or immediate predecessors, were Siburius, Eutropius, and Ausonius. He furnishes a lengthy quotation translated from a Greek work falsely attributed to Hippocrates, but makes no allusion whatever to Galen, a proof that the prince of physicians had not yet acquired his authority among the Latin schools. Marcellus was a writer of no originality. What he has not borrowed of other writers, he admits to have been derived from the people of the rural districts. He gives a sort of introduction, consisting of translations or lengthy quotations from earlier writers, and

* Priscianus, Panckoucke's edition of his poems. Paris, 8vo. 1845.

† See the Medicinæ Artis Principes of Stephanus.

particularly from Vindicianus, whom he styles Count of the Archiatri to Valentinian. In the body of his work, he treats of medicaments and their application to diseases in the order from head to foot, after the manner of the empirics, of whom he declares himself a follower. Some critics charge him with plagiarism, for having transcribed without acknowledgment, whole chapters from Scribonius Largus. But it is to be remembered that the latter was also a copyist, and the pupil of Apuleius, from whom Marcellus acknowledges that he had drawn a portion of his materials; so that the passages common to both of these compilers, may owe their identity to their common origin.

Among the contemporaries of Marcellus, and, as a writer, observer, and scholar, by far his superior,—was Vegetius Renatus, the author of a treatise on Veterinary Medicine, in four books.* In the first book he treats of the pestilential diseases of the lower animals. Of which, says he, there are seven kinds, the humid, the dry, the subcutaneous, articular diseases, elephantiasis, subrenal disorders, and those which he calls farciminous, corresponding with glanders and farcy of the present day. Each of these he takes up separately, giving in a systematic and lucid manner their respective symptoms and modes of treatment. The second and third books are devoted to local diseases and injuries, and to the bites of rabid or venomous animals; the fourth

* Vegetii Renati Artis Veterinariæ, sive Mulomedicinæ, libri iv. 8vo. Bipinti ex Typographia Societatis, 1787.

to the anatomical structure of beasts of burthen, to their changes and varieties according to age, country, and other modifying circumstances, and to the various confections and other preparations employed in the treatment of their diseases. The work is that of a man familiar with the practical details of his profession, and who draws less from other writers than from his own experience.

CHAPTER XII.

GREEK MEDICAL WRITERS SUBSEQUENT TO GALEN.

Turning from the Latins, we must again take up the line of progress among the Greeks. The earliest of these, after Galen, whose names are deemed worthy of attention, were Cæsarius, Oribasius, and Nemesius; all three, though contemporary with Marcellus, appear to have written before him, and to have flourished between the accession of Constans, A. D. 350, and the death of the elder Theodosius, A. D. 395; and at the close of this period came the partition of the empire.

Cæsarius was the younger brother of St. Gregory Nazianzen, archbishop of Constantinople, and was the earliest Christian physician of distinction at the imperial court. On the completion of their ele-

mentary studies, the two brothers, Gregory and Cæsarius, departed on the same day from their father's house; the one to complete his philosophical course at Athens, still the principal seat of Grecian arts; and the other, to pursue his medical studies at Alexandria. After a residence of five years at the latter city, Cæsarius commenced practice, and rose to great distinction at his native place, Nazianzus, a town of Cappadocia. But on the removal of his brother to Byzantium, he was induced to follow him. Under the patronage of Constans, Cæsarius soon rose to the senatorial rank, and was appointed Archiater, or physician to the emperor. In the enjoyment of an ample patrimony, he practiced his profession gratuitously, and with great renown. Julian, who had formerly been a fellow-student with Gregory, at Athens, and who succeeded to the throne, A. D. 363, desirous of the services of Cæsarius, urged his return to the ancient religion of the state; and notwithstanding the refusal of Cæsarius, he persisted in retaining him at the imperial court. But overcome by the solicitations of his brother, he at length retired to his native place, where he spent the remainder of his days. Whatever he may have written on medicine is lost, though some of his theological writings are still extant.* His brother, the bishop, lived to pronounce his funeral oration. The touching eloquence of this discourse, even at the present day, fills the reader with emotion.† Need

* Mosheim's Institutes. Harper's edition, N. Y. 1845, p. 249, note.

† See Extracts from Gregory Nazianzen in the Cours de Literature Grecque, par M. Planche. Paris, 1828, tome vii. p. 176–287.

I speak, says this prelate, of his great acquirements! need I speak of his skill in medicine, particularly in that admirable department of the art which enabled him to recognize the complexion, temperament, and principle of diseases, and thereby to arrest their progress, or nip them in the bud! Who is so unaware of his talents, so unjust towards him, as to dispute his claim to the highest place in his profession! Who might not be satisfied to rank in excellence even next beneath him! In proof of his abilities, I appeal both to the East and West; to those of every region among whom his talents have been exerted.

What may have been the character of the medical institutions of the empire at this period, Gregory has not undertaken to inform us, but the rivalry of which he speaks, between the literary institutions of Athens, might lead us to suppose that the same spirit may have shown itself at Alexandria. There prevailed, as we are told by him, in most of the young students at Athens, a complete sophistic furor. They all canvassed for their master; for it was not the custom to attend different lecturers at the same time; but each one, as a rule, attached himself to one teacher. The poor students, especially, lent themselves to this business of recruiting, since they got exemption from class payment, or even some degree of remuneration, if they succeeded in bringing to their respective sophists a good supply of newcomers. An unprejudiced youth could scarcely set his foot on Attic ground without being already claimed by the adherents of a party; they wrangled,

they struggled, they threw themselves around him; and it might easily happen that a young man was torn quite away from the teacher whom he had come to attend. The whole of Greece was drawn into this partizanship of the students for their favorite sophists, so that this recruiting was carried on in the streets and harbors of other cities also. Nor were the literary disputes and altercations of the different schools among themselves, less animated; indeed, they seldom concluded without coming to blows.*

Oribasius, of whom we have next to speak, was a native of Pergamus, or, as some assert, of Sardis. He received his professional education under Zeno of Cyprus, the most distinguished professor of the fourth century, who taught first at Sardis, and afterwards at Alexandria. If Cæsarius was the earliest of the Christian, so Oribasius was among the latest of the pagan medical writers.† He ranked with the philosophers of the times, and his influence was such that Julian was principally indebted to him for his accession to the throne. Early commended to Julian by his talents, by similarity of tastes, and by their common devotion to the ancient religion and institutions of the nation, he became his intimate companion, and was one of the four friends who were permitted to accompany him into Gaul. At his

* Gregory Nazianzen as cited in Ullmann's Ecclesiastical History. See Westminster Review, Oct. 1851.

† Oribasii Sardiani Medici longe exellentissimi Opera, tribus tomis digesta, Joanne Baptista Rosario interprete, in the collection of Stephanus; also in Coccius, e Collectione Nicetæ.

request he undertook a journey to Delphos, and received from that oracle the memorable response, that hereafter the oracles are mute. He subsequently officiated as quæstor of Constantinople; and in the capacity of physician accompanied Julian into Persia; where, after the disastrous defeat of the imperial forces, he watched over the wounded emperor in his dying hours. Banished by the successors of Julian, he spent many years in exile; and among the barbarians, by the exercise of his talents he rose to celebrity, and was held in the highest reverence. He was subsequently recalled, and restored to rank and honor; and he is said to have survived till towards the middle of the fifth century. Familiar with the literature of his profession from the earliest ages, he undertook, at the request of Julian, the labor of compiling from his predecessors every thing of value,—a labor which he accomplished in a work of seventy, or seventy-two books. In the arrangement of this immense work, he treated first of the articles of diet and medicine from the vegetable and animal kingdoms, of the different modes of preparing these, and of their pharmaceutical administration. He next directed his attention to the nature and anatomical construction of the human frame, deriving some portion of his materials from his own dissections of monkeys and other animals. He then proceeds to the rules of health; and next, to the study of diseases in general, diagnosis, prognosis, to the circumstances and symptoms proper to individual diseases, and finally to the treatment.

Of the whole of this encyclopedic performance we still possess, the first fifteen books, two other books, usually considered the twenty-fourth and twenty-fifth, certain fragments preserved in the collections of Nicetas, and other fragments on bandaging, and on surgical apparatus for the treatment of fractures and luxations. In the distribution of his several subjects, each chapter is headed with the name of the author from whom it has been abridged or taken verbatim. And so cautious is he in making these acknowledgments that what he has not thus accredited to others we may presume to have been derived from his own experience: many such chapters are scattered through the work. Among the authors quoted by him are Hippocrates, Diocles of Charystus, Ctesias, Xenocrates, Archigenes, Menemachus, Sabinus, Deuches, Ruffus, Philotimus, the surgeon Herodotus, Antyllus, Philagrius, Plistonicus, Athenæus, Agathinus, Possidonius, Zopyrus,—not to mention Galen, upon whom he draws continually,—and numerous minor authors. After completing this collection, he prepared a synopsis of it in nine books, which he dedicated to his son, and which appears to have been intended simply as a syllabus for students. This smaller work is preserved entire. There is still a third production, entitled Euporista, dedicated to Eunapius, as well as certain commentaries on Hippocrates, which some writers have attributed to Oribasius; but the ablest critics ascribe these to other authors of much inferior merit. Among the most important portions of the collection which are presumed to be original, are the

rules which he lays down for the practice of gymnastic exercise, his observations on the physical and moral education of children and youth, something in physiology, symptomatology, and general therapeutics, on the use of enemata, and on the abstraction of blood. He alludes, on the authority of Galen, to the partial or bent fracture of the long bones of children, a fact which appears to have escaped M. Malgaigne; who, in his history of surgery, has accredited the first description of this accident to Lanfranc, a surgeon of the thirteenth century.*

Hospitals and other Medical Institutions of Christianity.

Before the ultimate overthrow of the pagan institutions, while Christianity was hardly yet in the ascendant, the prelates and clergy were gradually acquiring the control of all that related to the physical and social welfare of their people. The religious and moral instruction of their flocks constituted but a portion of their duties. To them was also assigned the care of the orphan, the widow, the friendless, the needy, and the suffering; a duty which they sometimes performed in person, sometimes through the agency of special officers of the church, or of the Benedictine and other monks. This custom appears to have originated with the local organization of the churches in the time of the apostles. It was still in use up to the period of the Decian persecution, A. D., 250; soon after which,

* Coccius, e Collectione Nicetæ, p. 185. Malgaigne, Introduction, Œuvres d'Ambroise Paré.

we find Cyprian, bishop of Carthage, charging Novatus, one of his presbyters, with the crime of appropriating to his own use the property which had been entrusted to him for the benefit of the poor and destitute of that diocese.* As yet, however, we have no notice of buildings set apart by the church for charitable uses; nor is there reason to believe that any such existed either before or during the protracted periods of persecution, nor at any time prior to the accession of Constantine, who ruled from A. D. 306 till 337, and under whom Christianity first became the religion of the state.

The edict of this emperor for the closure of the Asclepions, as well as the other remaining temples of pagan worship, led at once to the establishment of hospitals and other charitable institutions under the auspices of the church. Constantine himself took an active part in providing the clergy with funds and every requisite for extending the institutions of the newly adopted religion of the empire;† and his mother, Helena, devoted all her energies to the founding of churches and benevolent institutions at Constantinople, as well as at Jerusalem and other places.‡ The example set by this devout and influential woman was followed by those of her own sex, who had the means at their command in every part of the empire. During the succeeding reign, by order of Gallus Cæsar, the

* See Introduction to Ecclesiastical History of Socrates. Bohn's edition, page ix.

† Eusebius, book x., chapter vi.; and elsewhere.

‡ Theodoret, History of the Church, book i., chapter xviii.

elder brother of Julian, the groves of Daphne in the neighborhood of Antioch, once sacred to Apollo, were, in A. D. 357, dedicated to the church.* And, notwithstanding the subsequent opposition of Julian to this measure, the grounds within which had formerly stood the magnificent temple of Apollo Daphnæus, were occupied by an hospital for the sick.†

Again, the emperor Valens presented the most beautiful lands in the neighborhood of Cæsarea to Archbishop Basil, for the benefit of the poor whose bodies were affected with disease, as being those who there stood most in need of assistance.‡ And as early as A. D. 373, Basil had already organized at Cæsarea an immense hospital called the Basilides, which Gregory Nazianzen thought worthy to be reckoned among the wonders of the world, so numerous were the poor and sick that came thither, and so admirable were the care and order with which they were served.§ The charge of the suffering within the walls of these new institutions, was not at first assigned to humble hands. The most illustrious ladies of the empire participated in these offices of mercy. At Constantinople, the empress, Flacilla, wife of the elder Theodosius, A. D. 380, was watching with solicitude over all those whose bodies were mutilated, or who had lost

* Select Works of the Emperor Julian, Duncombe's translation. London, 1784. Vol. i. p. 247, note.

† Evagrius, Ecclesiastical History, book iv., chapter xxxv.

‡ Theodoret, book iv., chapter xix. Bohn's edition, p. 177.

§ Ullman, Ecclesiastical History of the Fourth Century. See Westminster Rev., Oct. 1851, American edition, p. 56.

any of their limbs. She visited them at their own dwellings, waited upon them herself, and supplied their wants. She repaired with the same zeal to the public hospitals of the church, where she tended the sick, made ready their culinary utensils, tasted their broth, carried the dish to them, broke the bread, divided the meal, washed the cups, and performed for them all the offices which usually devolve upon servants.*

In the Code of Justinian† we find a summary of the edicts issued by different emperors in relation to the charitable foundations, and the duties of the several officers in charge of them. The Orphanotrophi officiated as guardians to the orphans. The Xenodochi were commissioned to give accommodation to strangers and travelers. It was at the Stranger's House that Ambrose, bishop of Milan, received the emperor Theodosius, A. D. 390, on his visit of reconciliation to that prelate.‡ The Brephotrophi had the care and protection of foundlings. The Ptochotrophi had charge of the poor; and the Nosocomi had the care and management of the sick. These several functionaries all belonged to the order of the clergy. But the Perabolani, who, to the number of six hundred, served under the bishop of Alexandria, and whose duty it was to

* Theodoret, book v., chapter xix.

† Lib. i., Tit. iii., "De Episcopis et Clericis, et Orphanotrophis et Xenodocis et Brephotrophis, Ptochotrophis et Ascetriis et Monachis, et Privilegiis eorum," &c. In reference to the Nosocomi see, also under the foregoing title, L. 42, §§, 6 and 9; and the notes of Cujacius on the third of the Nouvelles Constitutiones; and the edict of Honorius and Theodosius, A. D. 487, in reference to the Perabolani.

‡ Theodoret, book v. chapter xviii. Bohn's edition, p. 221.

administer to the sick in time of pestilence, were uneducated laymen. Among the clerici or clergy, besides the prelates and officers already mentioned, were presbyters, archdeacons, deacons of either sex, sub-deacons, ascetriæ, or those appointed for religious meditation, readers of the Sacred Scriptures, exorcists, ostiarii or door-keepers, psaltæ or singers, and hermiæ,—monitors or expositors. These various functionaries received the appointments not by favor of their superiors, but by the voice of the people among whom they officiated.

The duties of the Nosocomi, or those in charge of the Nosocomia or hospitals, imposed upon them the necessity of familiarizing themselves in some measure with the principles of medicine, and in this way they were prepared to practice at large among the people. The regularly educated lay physicians were thus gradually deprived of many of their prerogatives, and supplanted by the clergy, who, in their united capacity of priest and physician, were afterwards for many ages almost the only practitioners of medicine. During this long period many of the higher clergy, as well as of the humbler members of the monastic order, were distinguished as writers and teachers of the healing art. One of the earliest of these, Nemesius, bishop of Emesa, the contemporary and friend of Basil and Gregory Nazianzen, flourished A. D. 380, and was the author of a work on the Nature of Man,* which is

* Nemesius Emesenus De Natura Hominis, Græce et Latine, 8vo., Magdeburg, 1802.

still extant,—a work long popular as a text-book in the schools, and written after the manner of Galen's treatise, "De Usu Partium." In this work, medicine, philosophy, and morality are intermingled. In its chapter on the pulse, some critics have imagined they could discern the first intimation of Harvey's great discovery, the circulation of the blood. The worth of their opinion may be readily inferred from the following passage; which it must be admitted is a clearer exposition of the subject, and nearer the truth, than any similar passage that can be cited from Galen or Aristotle: "The movement of the pulse, which is a vital function, has its origin in the heart, especially in the left ventricle, which is called Spirabilis, and which imparts the innate vital heat through the arteries to every part of the body, in the same manner as the liver through the veins imparts nourishment." The pathology of fever advanced by Nemesius is deduced from his theory of innate heat, and is evidently borrowed from Galen.

The assumption of the duties of the medical profession by the clergy, was effected at a comparatively early period in the western portion of the empire, and was nearly complete, excepting in some of the larger cities, especially of Italy. But though it began also early in the East, it does not appear ever to have been so thorough there. The Perabolani of Alexandria, who seem to have ranked between the uneducated nurse and the clerical physician, became so troublesome by their numbers and their turbulent habits, that they were disbanded by their

superiors. The regular teaching of medicine in that city, as well as the business of general instruction there, passed, after the reign of Theodosius, directly into the hands of lay professors of the Christian faith. The school of medicine at Alexandria, continued to flourish, though with waning luster; and from it issued most of the medical writers whose works remain to be noticed among the later of the ancient classics.

The first practitioner worthy of notice, after Oribasius, was Jacob Psychrestus, who flourished at Constantinople during the reign of Leo the Great, which extended from A. D. 457 to 474. He is not known as a writer, but he is mentioned by Alexander Trallianus* as a practitioner of consummate ability. He was educated under his father, Hesychius, at Alexandria. He officiated as Archiater under Leo, and was held in high estimation by the Senate, who decreed him a statue, which was raised to his honor in the Baths of Zeuxippus; and another was still existing at Athens as late as the reign of Justinian.†

The Last of the Ancient Latins.

Before again returning to the classical medical writers of the Eastern empire, not knowing where else to speak of the only remaining Latin pagan writer of the profession after the time of Oribasius, I must here briefly notice the hexameter poem "De Viribus Herbarum," by Macer Floridus.‡ M. Bau-

* Lib. v. cap. iv. † Freind, vol. i. p 125.

‡ Par M. Louis Baudet (professeur). Paris, 8vo. 1845.

det, I am aware, is disposed to class this work among the literary performances of the ninth century. But the name of Strabus, which he finds in it, and upon which he founds this opinion under the presumption that it refers to Walafride Strabo, a German ecclesiastical writer of that age, is no proof that the author of this poem flourished at so recent a period; since the name Strabo, as given in the poem, is quite as applicable to the ancient geographer, or to any other ancient author who, like him, may have received this appellation from the accidental disfigurement of a strabismus. Emilius Macer, a contemporary of Ovid, was also the author of a medical poem on birds, serpents, and plants. And according to the theory of M. Baudet, the author of the work "De Viribus Herbarum," whose real name is said to have been Odobonus, adopted the name of this ancient writer in order to give greater repute to his own performance.* But the first lines of the poem in question introduce the ancient mythology, and could hardly have been written by any of the Christian monks of the ninth century, when literature was at its lowest ebb among the Latins, and when the name of Emilius Macer was perhaps as little known to the medical profession of western Europe as if he had never existed.

The style, versification, and language of this poem are above mediocrity, and are in imitation of Serenus Sammonicus. It begins by recognizing Diana, the Artemis of the Greeks, among the divinities of medicine. It is divided into seventy-

* See, also, Le Clerc, p. 560.

seven sections, each of which is devoted to the medical virtues of some particular plant. The interest, however, assigned to this performance at the present day, is in its display of learning. Macer Floridus, says M. Baudet, introduced among us the knowledge of the Greeks and Romans in natural history and practical medicine; and he supplies us with many curious and useful documents, not only on his own art, but also on the manners and domestic usages of the ancients. To this commendation may here be added, that he is the earliest of the Latin writers to speak of Galen, or as he calls him, Galienus. He cites Hippocrates, Diocles, Chrysippus, Dioscorides, Themison, Strabo, Apollodorus, Menemachus, Oribasius, the elder Cato, Sextus Niger, Pliny, and the obscurer names of Anaxilaus and Melicius. He alludes occasionally to the efficacy of charms, but he is free from the grosser superstitions of the monks of the middle ages; and with the exception of the word "frater," which he once employs as a term of address, we could hardly suspect him to have been acquainted with the institutions of Christianity.

Aëtius of Amida in Mesopotamia, a learned physician of the Christian faith, is supposed to have flourished about the middle of the sixth century. After completing his education, he settled in Constantinople, where he rose to the dignity of archiater at the imperial court, with the honorary title of

colonel of the imperial guard. We are indebted to him for a voluminous compilation on the art of medicine,* mostly copied from the writings of his predecessors, but interspersed with original observations, and often presenting the opinions of earlier authors so condensed and well expressed as to be clearer than the originals. This work was at first prepared in sixteen distinct discourses, which have since been arranged into four books of four discourses each. Of these discourses, the first treats of medicinal plants and their pharmaceutical preparation; the second, of such medicines as are not of vegetable origin; the third, a somewhat confused medley of miscellaneous subjects, treats mostly of the influence of air, exercise, climate, locality, waters. The fourth treats of the management of children, of the humors and temperaments, and their signs. The fifth discourse, or the first of the second book, treats of the signs of disease, prognostic and diagnostic; of fevers and their management; and of other constitutional affections. The sixth discourse, and the others to the end of the twelfth, are devoted to the consideration of local diseases from head to foot; the thirteenth treats of the bites and stings of animals, including poisoned wounds. Here also, lepra and certain other diseases affecting the skin, are introduced. The fourteenth discourse is occupied with diseases merely of a surgical character, affecting the groin, perineum, and organs of gen-

* Ætii Medici Græci Contractæ ex Veteribus Medicinæ Tetrabiblos; id est, libri universales quatuor, singuli quatuor sermones complectentes. Per Janum Cornarium Latine conscripti. In the collection of Stephanus. Venice, 1567.

eration; the fifteenth also treats of diseases mostly surgical, tumors, ganglia, strumous affections, aneurisms; and enters fully into the preparation and employment of plasters. The last discourse of all is occupied with diseases peculiar to women. The portions of the work assigned to the management of young children, are full, and well considered, as are also those on fevers. The following observations on eruptive fevers, which he derives from Herodotus, a practitioner at Rome prior to the time of Galen, are worthy of notice:—

In certain acute fevers, says he, there will be an eruption of pustules about the lips and nose towards the close of the attack. In fevers which are not simple, but rather from a depraved condition of the humors, there will appear vibices like flea-bites, over every part of the body. In malignant and pestilential fevers, these may ulcerate and sometimes assume the appearance of carbuncles [a term here applied to minute and highly inflamed pustules, and to furuncles, as well as to what is now understood by carbuncle]. These eruptions are all indicative of a multitude of corrupt and erosive humors. Those which appear on the face are the most malignant; their danger being in proportion to their number and dimensions. Those which rapidly disappear, or go through their changes quickly, are worse than those of longer duration. The highly inflamed are more dangerous than such as are attended with pruritus. Those following constipation or moderate evacuation, are of little danger; but those succeeding a looseness or vomiting are bad.

Pustules are often followed by malignant fevers, or by deliquium animi.*

The allusions in the foregoing paragraph will be seen to have some bearing upon the eruption and fever of small pox; and their bearing upon this disease will be more clearly seen by comparing them with a similar passage hereafter to be introduced from Ahrun, the earliest author known to have written expressly upon that disease.

Many surgical topics are well handled by Aëtius. He was a strenuous advocate for the actual cautery. He is the first to mention uterine calculus. He recommends the perineal operation for vesical calculus; and describes a scabrous affection of the bladder, which, however, is also spoken of by Oribasius. He excises hæmorrhoidal tumors; he operates on brachial aneurism by a double ligature upon the artery on the cardiac side of the tumor, and subsequently opening the sac and emptying it; and secures the vessel at the points of its communication with the tumor. But he pays his deference to the superstition of his times, in recommending the use of amulets, and in resorting to charms and incantations. For removing a foreign substance from the pharynx, he tells us to touch the patient's neck and repeat the following: "As Jesus Christ raised Lazarus from the dead, and Jonas from the whale's belly, so do thou, whether shell or bone, make thy escape;" or thus: "The martyr St. Blaisius and the Saviour Jesus Christ, command thee to move either upwards

* Tetr. ii. serm. i. cap. cxxix.

or downwards." In like manner he resorts to incantations and Scriptural expressions in the preparation of his medicaments, for imparting to them greater efficacy. In compiling from other writers, Aëtius is careful to give the name of the author at the head of each chapter. He has thus preserved the names and given valuable extracts from the works of several writers not elsewhere mentioned; among these may be noticed Aspasia, an able and original writer on obstetrics and the diseases of women and children, from whom many distinct chapters have been borrowed by him, and in this way preserved from oblivion.

Alexander, surnamed Trallianus, from his native city, Tralles in Lydia, flourished shortly after Aëtius, whom he takes occasion to mention. He was of a talented family; his father Stephen, and his brother Dioscurus, were of his own profession; his brother Olympius, was distinguished in jurisprudence; his brother Metrodorus was known as a grammarian; and a fourth, Anthemias, was employed as an architect by Justinian, A. D. 532, in building the cathedral of St. Sophia, which still stands among the principal ornaments of Constantinople. Alexander had traveled extensively in Italy, Gaul, and Spain, and had resided long in Tuscany, before ultimately settling in Rome, where he rose to great distinction. His work on the art of medicine,* dedicated to his friend Cosmas, the son of his preceptor, was written

* Alexandri Tralliani de Arte Medica libri duodecim. Joanne Guinterio Andernaco interprete. See Collection of Stephanus, Venice, 1567.

after the infirmities of age had disabled him from the more active duties of the profession. This work is worthy of notice no less for the discriminating judgment and original observations of its author, than for the order and perspicuity of his descriptions of disease, or for the simplicity, force, and elegance of his style. In point of originality, Alexander ranks next after Hippocrates and Aretæus. He speaks of Galen in higher terms than any previous writer, calling him the "most divine," and placing him even above Hippocrates. Nevertheless, he does not hesitate to dispute the authority of this great master when at variance with his own experience. His work consists of twelve books; of which, in their present numerical order, the first eleven treat of diseases, from the head downwards. The last is mostly occupied with fevers. But the dedication or introduction to the whole work, is at the opening chapter of this twelfth book; where the author speaks as if at the commencement of his literary labors. It is, therefore, reasonable to infer that the twelfth book, as at present arranged, must have been originally the first; and that it was the author's object to speak of constitutional or general ailments first, and of local diseases afterwards. The work is occupied almost exclusively with the description and treatment of diseases; with little allusion to anatomy, to topics strictly surgical, or even to the materia medica, except in direct relation of remedies to the diseases in which they are employed. Under the head of each ailment, he lays down the characteristic appearances and symptoms; points out the

divisions and subdivisions; notes the diagnostic symptoms when necessary; enters occasionally into the exciting causes and the actual conditions of disease, in accordance with the humoral pathology of Galen, or sometimes with the theory of the methodists; and finally proceeds to the treatment, whether by diet and regimen, or the administration of medicines. In the management of acute diseases, he pays great attention to the influence of age, temperament, mode of life, atmospheric changes, season of the year, and above all to the effects of nature. He enjoins caution in the use of opium for the cure of diarrhœa, in consequence of its severe effects upon the brain. He is opposed to the use of astringents in dysentery, which he treats in accordance with the rational indications. His favorite remedy for dropsy was venesection, which he adopted from having seen œdema in a limb, where the movement of the blood through the part had been arrested by tight pressure above the tumefied portion, entirely overcome by removing the pressure. In chronic ailments he preferred mild aperients to drastic purgatives. He has been often commended for his skill in diagnosis. The passage usually referred to in proof of this, is that in which he lays down the distinctive signs of pleurisy and inflammation of the liver; a passage which the modern pathologist would hardly select for the purpose; and in which, from what is stated, he appears to have confounded pleurisy with inflammation of the lung. Like Aëtius and Marcellus, this author also recognizes the use of charms and amulets. But on the whole, considering the age in

which he lived, he was of sound judgment and great practical ability; and the work which he has bequeathed to us is among the most valuable relics of ancient medicine.

The reign of Justinian, from A. D. 527 to A. D. 565, was one of much vigor, and marked by success against the overwhelming inroads of barbarism. By the prowess of his generals, Belisarius and Narses, Italy was for a season delivered from the Goths, and the two portions of the empire again united. Under the supervision of his able minister, Tribonian, the whole body of Roman law was revised and reduced to system. The schools of Constantinople were rising into notice, and were under the supervision of able men.*

The sophist and historian Procopius, who flourished in this reign, if not educated for the practice of medicine, was well versed in every thing pertaining to the science, and is worthy of notice for his admirable description of the plague, which began in Egypt, A. D. 542, extended thence through Palestine, reached the Eastern capital in the year following; and spreading throughout every portion of the empire, continued its ravages for more than fifty years. The disease was in every respect identical with the modern plague of the Levant. The account of its first appearance at Constantinople, by Procopius, is worthy of special notice for his allusion to human dissections.† The physicians, he tells us,

* Gibbon.

† Freind, History of Physic from the time of Galen to the beginning of the sixteenth century. 2 vols. 8vo. London, 1726. Vol. i. p. 149.

conceiving the venom and head of the disorder to be in the plague-sores, opened the dead bodies, and, searching the sores, found huge carbuncles growing inward. Procopius has supplied much other interesting information in reference to the practice of medicine and the physicians of his time. Elpidius, archiater to Theodoric, he tells us, was the person to whom that monarch confessed his regret at having taken the lives of Symmachus and Boëtius. He states, that during the siege of Edessa, Stephen, a physician of that city, who had formerly been preceptor of Chosroes, and medical attendant upon his father, was chosen to conduct an embassy to Persia. And that Chosroes, before accepting the proposals of Justinian for peace, demanded as one of the conditions, that the physician Tribunus should be sent to him. Tribunus was accordingly sent, and after curing the king and residing a year in Persia, was permitted to depart with such rewards as he should ask. But, instead of wealth or honors, he requested that certain of his fellow countrymen, then captives among the Persians, might be set at liberty; a request with which Chosroes complied, by releasing not only the individuals specified, but others to the number of three thousand. The Greek physicians of this age, however, were not all so worthy of their calling. One of them, Uranus, like Thessalus in the time of Nero, supplied by self-assurance the defects of education, and the absence of real merit. Having accompanied the embassy from Edessa, he imposed himself upon Chosroes as a philosopher, confronted the Persian Magi in questions of science; and after

his return, was honored by the personal correspondence of the Persian king.

The institutions of Christianity under the authority of Justinian, were still more firmly strengthened than formerly. The ancient schools of philosophy at Athens, were by his imperial edict finally closed, and their property, with that of the other remaining institutions of paganism, appropriated to the building of churches. But the expulsion of the philosophers from their ancient home amid the groves of Academus, cast a cloud upon his name. Exiled for refusing to adopt the Christian faith, Damascius of Syria, Simplicius of Cilicia, Eulalius of Phrygia, Priscianus of Lydia, Diogenes and Hermias of Phenicia, and Isidore of Gaza, forsaking the Academy, turned their faces towards the East. They accepted the hospitality of Chosroes, enjoyed under the protection of this sagacious prince, that freedom from persecution to which they had been strangers in their own land, and in the exercise of their talents became the founders of new schools for the diffusion of Grecian science and civilization beyond the limits of the empire.*

From the reign of Justinian to the downfall of Alexandria, the only writers on medicine worthy of notice, were Theophilus, Stephen of Athens, John of Alexandria, Palladius, Ahrun, and Paulus Ægineta. The first of these, Theophilus, called also Philaretus, was a monk, and officiated as physician at the court of Heraclius, who reigned from A. D. 610 till 641. He was the author of a treatise on the structure of

* Freind, vol. i. p. 133; Sprengel, tome ii. p. 192; Gibbon.

the human body considered in a theological point of view, after the manner of Galen's treatise De Usu Partium; drawing his materials from Ruffus and Galen, with occasional additions of his own. He also left a treatise on the Pulse, and another on the Urine. This latter, though of little originality, may be considered the first of a series of works on the same subject, mostly by the Urinoscopists of the middle ages, who, as may be seen in the Lilium Medicinæ of Bernard Gordon, carried their chicanery to a pitch of absurdity perhaps never equaled by any other class of medical industrialists.

Stephen of Athens, John of Alexandria, and Palladius, were commentators on Hippocrates; and with Ahrun and Paulus Ægineta, were all of the Alexandrian school. Palladius, the Iatrosophist, was also the author of a work on Fevers, in which he advocated theoretical views proper to himself, though based upon the humoralism of his predecessors.*

Ahrun, a priest and physician of Alexandria who flourished during the reign of Heraclius, was the first to write on small-pox and other kindred eruptive fevers. His thirty books of Pandects are no longer extant, though extracts from them have been preserved by Rhazes and Haly Abbas.

"Pestilential ulcers," says he, speaking of plague, "are hot abscesses which appear at the groin and arm-pit, and prove fatal in four or five days. Those which are black are malignant: the red are sometimes fatal; but when they

* Sprengel, tome ii. p. 221-2.

are black or green, the patient hardly ever recovers. And so also, with the measles and small-pox, and other eruptive diseases: those that are black or green are the most malignant; the yellow are also dangerous, but not so much so as those just mentioned; while those that are red or white are the most curable." "The small-pox, boils, and the like," says he, "all arise from blood that is corrupt and adust with yellow bile." Again: "When you know that the small-pox is beginning to break out, do not give the patient cold medicine, which would tend to keep back the pustules in the interior; but let him have sweet fennel and smallage in order to bring them to the surface; and let him rinse his mouth with a decoction of lentils and sumach, in order that none may come out on his mouth and throat, and hurt them."*

Paulus Ægineta was educated at Alexandria, and is supposed to have been a professor in that city, at or about the period of its final subjugation by the Saracens, A. D. 640. His work† presents an able and orderly summary of Greek medicine from Hippocrates onward. He claims merely to have abridged it from Oribasius, with the view of furnish-

* Greenhill's translation of Rhazes on the Small-Pox and Measles, 8vo. London, 1848, pp. 103, 129, 163.

† Pauli Æginetæ Totius Rei Medicæ libri vii., per J. Cornarium, fol. Basil, 1556. A previous version called Opus Divinum, published at the same place, 1532, wants the sixth book. See also, the Artis Medicinæ Principes, collection of Stephanus, 1567, which gives Cornaro's version. Also, the English Translation by F. Adams, 3 vols. 8vo. London, 1844. And the French version of the sixth book, entitled "Chirurgie de Paul d'Egine," par René Briau. 8vo. Paris, 1855.

ing an epitome of medical science less voluminous than the cyclopediac compilations of that writer, and more useful to the physician than the imperfect synopsis which Oribasius had left of his own collections. But in the execution of this task, Paulus exceeds his original intention. He draws from many sources, and much from his own experience; and in all that relates to surgery, he is more full and circumstantial than any other of the ancient authors, not even excepting Celsus. His work is divided into seven books. In the first, he treats of hygiene and the rules of health, as applied to different ages, seasons, temperaments, and to the use of different articles of diet. In the second, he treats of fevers, excrementitious discharges, critical days, complicating symptoms and appearances. In the third, of local affections, from head to foot. In the fourth, of external maladies limited to no particular part of the surface, including cutaneous and verminous diseases. In book fifth, he treats of wounds and the bites of venomous animals, of poisons and their antidotes. In book sixth, he describes all the diseases calling for surgical manipulations; and in the last, he treats on the properties of medicines simple as well as compound, and particularly of such as he had mentioned in the former portions of his work; also on the modes of preparing these medicines, and on such articles as may be substituted for one another. Paulus is also said to have written on the diseases peculiar to women; and for his skill in this department, he was sometimes called by the Arabians, Paul the Obstetrician. By the moderns he is chiefly

esteemed for his able exposition of surgical diseases and operations. He had the honor of being almost wholly appropriated by Fabricius ab Aquapendente, one of the ablest surgical writers after the first revival of learning in Italy. Paulus is the first to speak of rhubarb as a cathartic.

The only other writer among the Greeks, after the time of Paulus, and worthy of rank among the ancient classics of the profession, is Actuarius. He flourished at Constantinople long after the fall of Alexandria; and is, therefore, to be reckoned among the luminaries of the middle ages.

Before closing this hurried sketch of the medical writers of antiquity, it is worthy of remark that Galen, whose authority was paramount to all others, from the close of the second to the middle of the seventeenth century, occupies the middle space in the thousand years which intervened between the founding of the Alexandrian school, and its ultimate overthrow by the Saracens. It has been customary to speak of the deterioration of medical science during the latter half of this period. But the decline must be taken in connection with the retrograde movement of general civilization during the same period, and attributed to the same causes. With the progressive decay of the Roman empire both of the East and West, the different communities of which it was composed were gradually sinking deeper and deeper into barbarism; and it is not

wonderful that the medical profession should have felt the general influence. Yet, when we consult such writers of this period as have reached us, and compare those of the first with those of the second part of it, as Cassius, Celsus, Aretæus, Dioscorides, Ruffus and Cælius Aurelianus, all prior to the time of Galen; with Oribasius of the fourth century, Aëtius and Trallianus of the sixth, and finally, with Paulus Ægineta, the last and among the best of them; we are struck with the general uniformity of their views and modes of reasoning, as well as with their course of practice. There is nearly as much originality, if not as much acumen, in proportion to their number, in the one group as in the other. Paulus and Trallianus in this respect, are the ablest offsets against Celsus and Aretæus. Of the later group, with the two exceptions just mentioned, few ventured much beyond the business of commentators or compilers. But in this they were not corrupters of the art. With the earlier masters still before them, they have advanced opinions of their own sufficient to show that if medicine had not been revolutionized by them, it had never been entirely neglected. The principles and practices established in better times were still maintained. The profession of those days, conscious of their own position, were content to reverence what they had neither the skill to equal, nor the temerity to set aside.

CHAPTER XIII.

LAWS AND CUSTOMS OF THE ROMAN EMPIRE IN RELATION TO THE PROFESSION.

Prior to the consolidation of the empire, there were probably no well-established laws among the Romans in regard to medical education, the term of study, or the qualifications of physicians. The system of training previously in use among the Greeks, appears in course of time to have been universally adopted. The liberally educated, whether of the profession or not, were all more or less initiated in what was then the philosophy of medicine; and some of the uses to which such information was applied by them, may be learnt from Varro in his directions for the building of villas;* or from Vitruvius,† a writer of the Augustan era, whose authority in all that relates to the locality of dwellings, to public works, and to the planning of new cities, might with advantage be consulted in questions of hygiene as applied to architecture, at the present day. The hygienic arrangements in the rural economy of Palladius, must also have been derived from the same source.‡

* M. Terentii Varronis De Re Rustica lib. i. cap. xi. and xii.

† Marci Vitruvii Pollionis De Architectura libri decem. Lipsiæ, 1836.

‡ Palladii Rutilii De Re Rustica lib. i.

The well-educated physician, in common with his medical knowledge, was presumed to be familiar with the grammatical structure of his own language, with rhetoric, arithmetic, geometry dialectics, moral philosophy, astronomy, and even architecture. Galen refers to these several branches of general education, as proper means for sharpening the intellect of the student preparatory to assuming the difficult and responsible duties of the profession.* And his contemporary, Apuleius Madaurensis, who styles himself the "not unknown priest nor recent worshiper, nor unfavored minister, of Æsculapius," addressing the people of Carthage in his figurative manner, says of the Goblet of the Muses, "The oftener it is drained, and the more unmixed it is, the more it conduces to soundness of mind. The first cup, that of the reading-master, takes away ignorance; the second, of the grammarian, instructs in science; the third, the rhetorician's, arms with eloquence. Thus far most people drink. But I have drunk other cups at Athens, the cup of poetry, the inventive; of geometry, the limpid; of music, the sweet; of dialectics, the roughish; and of universal philosophy, the never-satiating nectarious cup." †

The time usually devoted to the study of medicine, beyond that spent in the literary course, as may be inferred from Galen and others, was not short of

* De Cognoscendis Curandisque Animi Morbis lib. viii. cap. 1. Kuhn's edition, vol. v. p. 42. See also Administrationes Anatomicæ, lib. i. c. ii. Kuhn's edition, vol. ii. and numerous other parts of his writings.

† Florida, chap. xx.

five years. Galen, after a philosophical course of three years, which he began at the age of fourteen, had already been a student of medicine under Satyrius four years, at the breaking out of the plague in Pergamus, most of the time in daily attendance upon the sick within the temple. On the subsidence of the epidemic of that city, he resorted to Smyrna; there to continue his course under Pelops; he afterwards became the pupil and assistant of Numisianus, at Corinth; spent some time in Alexandria and other cities, and after finishing his education and his travels, he returned at the age of twenty-eight to Pergamus, to practice on his own account. Again, Cæsarius, brother of Gregory Nazianzen, who, for a time, practiced at the court of Julian, and was the physician and familiar friend of Valens and Valentinian, had been a student of medicine at Alexandria five years; and may have been previously engaged in the same pursuit at Cæsarea, then a celebrated seat of learning, or at his native place. The term of study at the celebrated law-school of Berytus, which was instituted by Alexander Severus, occupied five years.* The laws of Justinian enjoin that no apprenticeship shall be binding after the age of twenty-five;† which, for students of the liberal professions as well as of the industrial arts, was the legal limit to the period of pupilage.

The system of instruction in the Roman schools was mostly practical. Anatomy, at least the dissec-

* Gibbon, chapter xvii. § ii. Harper's edition, vol. i. p. 347.

† Codex Justiniani, lib. x, tit. xlix. § 1.

tion of the lower animals, was strictly enjoined. Galen insists with great force upon the necessity of this study, and states that in his own youth, he allowed no occasion to escape him for investigating the structure of the human body. After witnessing the dissections of his teachers, he examined with care the dried and moldering skeletons picked up among the tombs; he inspected the bodies of men drowned, and wafted decomposing to the shore; he turned to some account the remains of a malefactor who had been crucified and suspended near the way-side, on a gibbet, as a warning to evil-doers, and as food for birds of prey. He advises the pupil to dissect apes and other animals; and where other means fail, to resort to Alexandria, if for nothing else, to have the opportunity there presented of studying the human skeleton. He labors to convince his readers that a sufficient knowledge of the art is to be acquired only by years of observation and experience.* His own public course of teaching at Rome, as already shown, was of this character. And such continued to be the method of instruction up to the time of Oribasius; who informs us that the dissection of apes, in his day, still constituted a portion of the pupil's exercise; an occupation in which he himself had been engaged.†

Books were not then, as now, the main reliance of the student. The works at his command were few. Of these, the writings of Hippocrates and his com-

*. Administrationes Anatomicæ, ut supra.
† Collect. vii. 6.

mentators among the Greeks; of Celsus and Cælius Aurelianus among the Latins, next to the works of Galen,—were the chief. Portions of these, when accessible to him, he was required to ponder over, with the oral explanations or written comments of his preceptor. The temples were open to him, up to the time of Constantine; after which he had the opportunity of attending, with his instructor, upon the sick; and was obliged to practice under him before commencing for himself.

Indeed, the importance of practical training was, if possible, more highly estimated by the ancients than the moderns. Even the charlatans of Rome, who spurned all connection with the liberal arts, and professed to qualify their pupils within the short space of six months,* were duly impressed with the necessity of clinical teaching, and were in the habit of ostentatiously parading through the streets, followed by a retinue of young men, with whom they made their daily visits to the sick; a custom to which we owe the sarcastic epigram of Martial:

"Languebam; sed tu comitatus ad me
Venisti, centum, Symmache, discipulis,
Centum me tetigere manus Aquilone gelatæ;
Non habui febrem, Symmache, nunc habeo!"†

At Rome, as among the Greeks, there were physicians belonging to the servile races. And, that these might the more readily practice their profession,

* Galen, Methodus Medendi, lib i. cap. i. Kuhn's edition, vol. x. p. 5.
† Lib. v. Ep. 9.

they were usually declared freedmen by their masters. The estimation placed upon slaves engaged in the practice of medicine, may be ascertained from the Codex of Justinian;* which fixes the legal value of a maid servant at twenty solidi; of a male slave skilled in any handicraft, at thirty solidi; notaries, whether male or female, at fifty solidi; and physicians, male or female, at sixty solidi.

We have already seen that in ancient Egypt, as far back as history extends, the practice of medicine was divided into numerous branches. This custom never became general among the Greeks or Romans; yet in the larger cities some approach was made towards it. Galen informs us that in the less populous districts, where specialists were unable to find employment, they were in the habit of perambulating the country, and practicing from place to place. Pharmacy, as already shown, had become a distinct department as early as the days of Aristotle. Gymnasiarchs and Iatroleptists, or anointers and bathers, in the exercise of their calling, were in some measure subservient to the profession, and had always paid some attention to the treatment of injuries. Midwifery was still in the hands of the obstetrix. And some few of these ancient handmaids of Lucina, as Aspasia, Cleopatra, and others, were writers as well as practitioners. But surgery and medicine proper, though sometimes taught or practiced separately as specialities, were

* Lib. vii. tit. vii. § 5.

never disconnected by the educated physicians of antiquity, who rejected most of the specialists as impostors.*

Of these illegitimate sons of Æsculapius, the numbers and pretensions were as great in ancient as in modern times; and they were quite as apt to receive the countenance and favor of the upper classes. Chosroes of Persia was the patron of Uranus; and Nero was the supporter of the audacious Thessalus, who, like Paracelsus, repudiated all learning as useless, and like the still more recent mountebank, Hahnemann, modestly assumed to be above all, and opposed to all, who had ever gone before him. Pliny and Galen are justly severe on most of these ancient impostors. And if we can credit their account of them, the host of industrialists, oculists, rhinoplasts, dentists, bone-setters, herniotomists, lithotomists, gelders, abortionists, and poison-venders, pervading Italy, France, and Spain throughout the middle ages,—before whom the modern group of pretenders grow pale and insignificant,—were at least equaled, if not exceeded, in ignorance, as well as arrogance, by the quacks of Rome.†

With regard to schools, besides the cities already mentioned, Athens, Corinth, Berytus, Laodicea, and Cæsarea, among the Greeks; and at different epochs, Milan, Pavia, Traves, Arles, Marseilles, and Bordeaux

* Corpus Juris Civilis Digest, lib. l. tit. xiii. § iii.

† Galen, Methodus Medendi, lib. i., cap. i., ii., iii. Vol. x. p. 5, *et seq.* Pliny, lib. xxix., cap. viii. Corpus Juris Civilis Digest, lib. l., tit. xiii., l. 3. et Julii Pauli Recept. Sentent. lib. v. tit. xxiii., §§ 7, 8, 11, 12.

among the nations speaking the Latin tongue,—in short, most of the other large cities of the empire,—supported each its own institution; in which the study of medicine was systematically pursued in connection with other liberal arts and sciences.* Each of these schools enjoyed a degree of local reputation; and, with regard to medicine, held by custom, if not by rescript, somewhat the same relation to that of Alexandria, as the gymnasia and provincial medical schools of Prussia, Denmark, and Holland at present hold, to the more celebrated universities of these countries.†

Though many of these institutions may have been of spontaneous growth, yet by degrees most of them fell under the immediate patronage and supervision of government. The number of professorial chairs in each of them was regulated by law.‡ The professors, in common with the Archiatri or state physicians, received a fixed salary out of the public treasury;§ and after a faithful performance of their duties for twenty years they had the privilege of retiring with honor in the enjoyment of a pension.‖ Teaching, however, was not wholly restricted to the state and salaried professors, but was open to other able and educated men.¶

* Guizot, Cours d'Histoire Moderne, Leçon 4m, p. 160, and Leçon 16m, p. 261.

† De Medicis et Studio Medicinæ in urbe Alexandrina; hoc scitu dignum refert, Ammian. [22 in. fin.]; ad commendandam, inquit, artis peritiam, medico pro omni experimento sufficit si Alexandriæ dixerit se eruditum. [Notes to the Codex Justiniani, lib. i., tit. iii. cap. 18.]

‡ Digest, lib. xxvii., tit. i., cap. vi., § 2.

§ Codex lib. x., tit. lii., § 6.

‖ Lib. xii., tit. xv.

¶ Digest, lib. xxvii., tit. i. cap. vi., § 11.

The attention bestowed upon the schools by some of the emperors after the time of Constantine, appears to have been extremely inquisitorial.* The edict of Valentinian, Valens, and Gratian, addressed to Olybius, the prefect of Rome, A. D. 370, though probably intended solely for the advancement of learning, is sufficient to show the jealous care with which the government officials watched over all men of liberal education; and that real liberty, even in the pursuit of knowledge, had long since given place to arbitrary power.

In compliance with this edict, the youth coming to Rome for completing their literary education, were required to furnish the city magistrate with a passport from the governors of their respective provinces, stating their name, age, and rank in life; to declare, on arrival, the course of studies to which they intended to devote themselves; and to acquaint the magistrate with their place of abode in the city, in order that he might place them under masters in charge of such branches of education as they had selected. They were held under the most rigid supervision by the city authorities, with reference to their conduct in the public assemblies of students, but more particularly in their private associations or clubs; which were discountenanced as vicious, if not dangerous to the state. They were prohibited from frequent attendance upon the public spectacles, and from riotous feasting at irregular hours. The student conducting himself unbecomingly, was subject to be publicly scourged,

* Codex, lib. x., tit. lii. §§ 7 and 8.

expelled from the city, or sent home to his own province. Those who devoted themselves assiduously to their studies, were allowed to remain to the close of their twentieth year; after which, failing to return home, the magistrate was instructed to force them to do so. That these injunctions might not be disregarded, he was also required to prepare a monthly statement of the condition of each student; who he was, and whence he came; to be transmitted at the close of the student's course of education, to the province to which he belonged. A similar table was also to be furnished annually to the central bureau of the government, in order that the emperor might select from among those who had completed their education, such as might be wanted for the public service.*

By an edict of Alexander Severus, who reigned from A. D. 222 to 235, students in attendance upon schools not of their own municipality, as well as their parents who accompanied them, were to be considered as temporary residents without the privileges of citizens, unless remaining at the seat of the literary institution beyond the term of ten years.†

We have already seen that princes, the populous cities, and the thickly-settled districts of Greece, were in the habit of stipulating annually for the public services of physicians. This custom was in course of time, under certain modifications, adopted

* Guizot, leçon 4m, p. 166, from Cod. Theod., l. xiv., t. ix., l. 1.
† Codex, lib. x., tit. xxix., § 2.

by the Romans, and established by law throughout the empire. By a decree of Antoninus Pius,* the number of Archiatri, or state physicians, was limited in the metropolitan cities to ten; in cities of the second class, or those provided with a forum or hall of justice, to seven; and in the smaller cities, to five. At Rome their number was equal to the wards of the city.† They were chosen by the people of the municipalities‡ in which they officiated, and they ranked among themselves according to seniority of appointment.§ By an edict of Severus, they drew their salary from the public treasury of their respective municipalities;‖ and in return for this, they were required to attend diligently to the business of education, and to prescribe for the poor gratuitously. But such citizens as were able to pay for their services, and stipulated to do so, could be obliged to pay, at the close of the attendance, provided the stipulation had not been exacted from the patient while insane, or under unreasonable alarm.¶

In most of the Roman laws relating to the Archiatri, they are associated with the professors of rhetoric, philosophy, and the liberal arts; and in common with these, they and their families enjoyed certain privileges and immunities, not usually conferred on other citizens. They were exempt from

* Digest, lib. xxvii., tit. i., cap. vi., § 2.
† Cod. Theod. lib. xiii., tit. iii., l. 8., as cited by Sprengel, vol. ii., p. 164.
‡ Digest, lib. l., tit. ix., l. 1.
§ Codex, lib., x., tit. lii., § 10.
‖ Digest, lib. l., tit. ix., l. 4, § 2.
¶ Codex, lib. x., tit., lii., § 9.

all painful and disagreeable employments; their property was not subject to taxation; they were not required to provide accommodation for the soldiery or officers of justice; they could not be summarily brought before a magistrate; and if insulted or aggrieved, they enjoyed ready and efficient means of redress in the courts of law.* Such of them as were engaged in teaching, were more liberally paid than those who devoted their whole time to practice.† The term of their election and appointment to office, was limited only by their ability or disposition to perform their duties. If negligent of these, their salary was withheld, and they were subject to deposition from office.‡

In the larger cities the Archiatri were associated together as a college.§ They were intrusted not only with the business of teaching, but also with that of inquiring into the merits of all applicants for occupation in the profession, and of certifying to the qualifications of each applicant before the Decuriones or magistrates, by whom the license was conferred.‖ The private practitioner, applying for a vacant seat among the Archiatri, was required to have studied and practiced under some reputable member of their order, and to have been regularly examined and licensed. And after having first obtained the suffrages of the public to the vacant seat, he had, by a decree of Valens and Valentinian,

* Codex, lib x., tit., lii. § 11. Digest, lib. xxvii., tit. i., cap. vi., §§ 1, 5, 8, and tit. xiii. l. 1.

† Digest, lib. l., tit. xiii., § 1.

‡ Ibid. lib. xxvii., tit. i. cap. vi., §§ 4 and 6.

§ Ibid. § 2. ‖ Ibid. lib. l., tit. ix.

still to undergo a further ordeal, and receive the consent of at least seven of the members of the college before taking his seat amongst them.*

The physicians of the imperial household, and such as were intrusted with the health of the chief-magistrate, were also styled Archiatri,† a title which was first enjoyed under Nero, by Andromachus of Crete, but, perhaps, first regularly recognized by Domitian. These court-physicians or Archiatri-Palatini, during the reign of Constantine rose to greater dignity than the Archiatri Populares, or those of the municipalities. But they were occasionally willing to sacrifice their position at the court, in order to obtain the more lucrative office of the municipal institution. Among the Archiatri-Palatini there were also different grades; as counts of the first and of the second order, and other higher dignities. During the reign of Julian these titles of honor were created in great number, and sought after with avidity. Some of the court physicians subsequent to this reign, enjoyed the dignity of Proconsul, others that of Duke, &c. They ranked among the principal officers of State, and some of them, as Oribasius and Cæsarius, were on terms of intimacy with the emperors.

Army physicians, when absent on duty, and private practitioners not of the constituted number, if regularly educated and licensed by the magistrate, were entitled to certain immunities in common with other members of the liberal professions.‡ Receiv-

* Codex, lib. x., tit. lii., § 10.

† Codex, lib. xii. tit. xi. xiii.

‡ Codex, lib. x. tit. ii. § 1, §§ 5, 6.

ing no public appointment, they trusted to individual patronage for occupation, and had the right of claiming a fair return for their services. Privileges of the same kind were also granted to the obstetrix,* but were withheld from specialists, from medical evil-doers, from the necromancers, exorcists, the religious medical enthusiasts called Perabolani, and the numerous other pretenders who rose up among the people, especially among the Christian portion of them, before the final overthrow of the pagan institutions.†

But if this new order of Christian practitioners received no favor from the law, the spirit that impelled them was one in which the great mass of the community was eagerly participating. Scoffed at and ridiculed at first, they were at length in the ascendant; and they multiplied in proportion to the spread of Christianity. After Justinian had sequestrated the salary of the Pagan teachers for the purpose of building churches, and expelled the few remaining philosophers from their long respected abode in the Academy of Plato,‡ these uneducated practitioners may be said to have nearly supplanted the regularly inducted members of the profession. In the Latin portion of the empire, the debasement of learning was even more rapid and complete than with the Greeks. Yet the schools continued to linger here long after the inroad of the Gothic nations.

* Digest, lib. l. tit. xiii. § 2.

† Corpus Juris Civilis. Julii Pauli Recept. Sentent. lib. v. tit. xxiii. § 7. Notes to Digest, lib. l. tit. xiii. § 3, and Codex, lib xii. tit. viii. § 1.

‡ Novellæ, collect. ix. tit. xv. 132.

Theodoric the Goth even attempted the restoration of learning in the West; and his successor, Athalaric, restored to the professors at Rome the salaries that had been long withheld from them. He also enriched the schools of Milan, Pavia, and other cities; and Justinian on again acquiring the dominion of the West, confirmed the edict of the Gothic emperor.* So that learning may be said to have held some semblance to its ancient rank, up to the final subjugation of Italy by the Lombards.

But though the ancient educational institutions, after the advent of Christianity as a political power, were by degrees discountenanced and forsaken, yet the laws in regard to them were never formally abrogated. Many of them, under the patronage at first of the Bishops, and afterwards of the Benedictine monks, were converted into Christian schools. Some of them in the Eastern portion of the empire, now under the sway of the Saracens, served as starting points for the progress of knowledge, and especially of medical knowledge, among the Arabs. In many of the cities and municipalities of which the Western portion of the empire consisted, and into which it was finally dissolved, traces of the ancient system of medical education and police continued visible throughout the whole of the middle ages; and in connection with other fragments of Roman law not yet laid aside, played no unimportant part in the early development of modern science and civilization.

* Aliæ Aliquot Constitutiones Justiniani, capitula xxii, pp. 237. Elzevir edition.

ERRATA.

For "Telephorus," page 29, last line but one, read *Telesphorus.*

For "Burgess," page 33, last line, and page 36, tenth line from bottom, read *Burges.*

For "Clinicæ," page 47, fourth line from top, read *Clinice.*